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AND WITH

UNPRECEDENTED CLARITY.

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Memory Expandable to	80MB	40MB	24MB
Hard Drive	1.35GB Removable/ Multiple Drive Support	810MB	810MB
Battery	Enhanced NiMH	Lithium Ion	Enhanced NiMH
Cache	256K L2	256K L2	N/A
Video Graphics	32-Bit PCI Local Bus	32-Bit PCI Local Bus	32-Bit PCI Local Bus
IR Support	Yes	Yes	No
Pointing Device	EasyPoint™ II	Touchpad Optical Trackball (optional)	Optical Trackball
Display (others available)	11.3" CTFT SVGA	11.3" CSTN SVGA	10.4" CSTN
Other Features	• Intelligent Manageability • 16-Bit Stereo Sound and joystick/MIDI port • MVA and Optional Hardware-Based MPEG • Optional MultiBay Expansion Base with/ without ISA Slot • Optional 6X CD-ROM Drive	• Flexible 3-in-1design • 4 User-Programmable keys • Integrated Audio and NTSC/PAL Support, and Zoom Video • MPEG-1 (software-based) • Optional Mobile CD Unit with 4X CD-ROM Drive, Speakers, 16-Bit Stereo Sound and joystick/MIDI port • Optional Convenience Base with/without Ethernet	• Tilting, Full-Function Keyboard • Detachable handle
Software Preinstalled	Choice of Windows® 95 or Windows 3.1	Windows 95	Windows 95, Astound, CSE, and MS-Works®
Weight	7.2 - 7.5 lbs. depending on model	5.1 - 8.2 lbs. depending on configuration	6.1 lbs.
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PCComputing

Windows 95/NT Superguide

It's all here! Hundreds of insiders' tricks, productivity tips, and undocumented secrets for kicking Windows 95 and Windows NT into high gear! **120**

CD Speedsters

Forget twitchy animation and jerky video—supercharge your apps with 8X and 10X CD-ROM drives! Plus, ultracheap multidisc jukeboxes hold all your CDs. **177**

Remote Possibilities

Away from the office? Don't get caught short. Retrieve files, launch applications, and tap into network drives and resources from afar. New remote control software makes it easy! **188**

DANGER!

Is your PC safe? Are you sure? Deadly computer viruses are everywhere—even on the Web. Don't miss our report on killer viruses, and what you can do to prevent infection. **198**

PC Computing

New!

Pentium Killers? Cyrix's 150MHz 6x86 and AMD's 100MHz K5 put the heat on Intel's Pentium. **68**

Soho

Paper Punishers Move the piles of faxes, business cards, receipts, and other documents off your desk and onto your hard drive with a personal document scanner. Plus, an 8X CD-ROM drive for under $150 and free Internet groupware. **323**

Opinion

Inter.net

More Signal, Less Noise Filter Web ads, block Net cookies, and blast into the fast lane. **334**

Windows 95 Buyers' Guide

PC Computing's guide to new Windows utilities and applications for the office and home.

Usability Approved
It's fast and cheap—but will it get the job done? Only products that meet or beat the high standards of our Usability Labs earn this seal.

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Get hundreds of freebies, bug fixes, and other bonuses from our Web site (www.pccomputing.com), CompuServe, Microsoft Network, or America Online when you see this seal.

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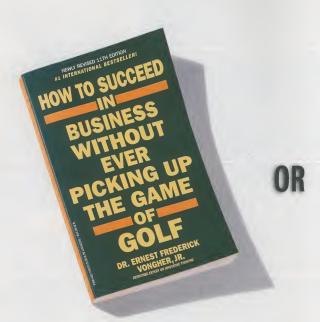
Of course, our MultiSpin 8X readers offer more than just speed. You'll also get Easy ROM Update™ technology, which adds security to your investment by letting you easily update to new standards. What's more, you'll find Windows® 95 Plug and Play, PC and Mac® compatibility, ease-of-use, and a one year limited warranty. So get yourself an NEC MultiSpin 8X CD-ROM reader. After that, you'll have no problem finishing off those hefty portions of data.
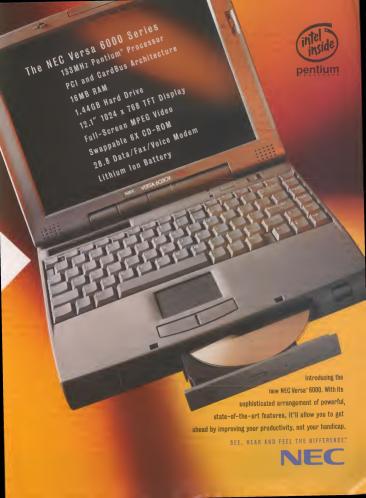
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How to Contact the Editors We welcome feedback. However, we can't respond to individual requests to look up stories from previous issues, recommend products, or diagnose PC problems. Send comments or complaints to 50 Beale St., 13th Floor, San Francisco, CA 94105; call us at (800) 676-4PCC; contact us via the Internet (72241.1724@compuserve.com) or CompuServe (72241,1724); or log on to PC Contact to post a public message (see page 22). PC Computing is under no obligation to review unsolicited products. All unsolicited submissions become the property of PC Computing. If you want to make a submission, contact one of the following editors: Features, Christopher Lindquist, News and Reviews, Kyla K. Carlson, Online, Matthew Johan. If you buy a product advertised in PC Computing, are dissatisfied, and can't resolve the problem, write (please do not call) Lola L. Tanouye, Executive Assistant to the Publisher, at the above address. Include copies of all correspondence.

Shouldn't Your Virus Protection Be This Easy?

(we think so)

It's true. Many of today's anti-virus programs are so confusing, you practically have to be a rocket scientist to figure out how to make them work. But don't get mad – get automatic with PC-cillin 95!

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Ultimate Freebies

There are zillions of free programs, games, and utilities on the Web, but where do you find the good stuff? On our Web site, of course. This month grab your copy of the action-packed 3-D battle game, Quake (below). Id Software's long-awaited follow-up to Doom pits you against a gruesome array of enemies; or play against your friends with its network support. You can also get tons of programs, utilities, and Internet applications from our site.

Top Secret

Catch a sneak peek at upcoming reviews, including Novell InnerWeb Publisher, a NetWare-based suite that has all you need to work the Web to your advantage. Plus, get an early look at our October Web Superguide cover story, which points you to the top browsing, searching, and publishing tools for the Net.

Gates Watch

How many Pampers can Bill Gates buy? How about McDonald's Arch Deluxe burgers? Copies of *PC Computing*? Don't miss our Gates Gazette. Using Java, we multiplied the number of Microsoft shares Gates owns by the current price of the stock and created a Gates Index. Just click on PCC Café to find it.

Turn On, Tune In

Who are the faces behind the names of *PC Computing*'s editorial staff? Tune in to PCC TV to find out. New channels and cool products are added every week.

A Virus Among Us

After you read this month's feature on computer viruses ("Danger!" page 198), go online for links to the latest virus-scanning software from McAfee, Symantec, and S&S Software.

WHERE CAN YOU FIND PC COMPUTING ONLINE?

Visit the *PC Computing* home page daily on the Web by pointing your browser to www.pccomputing.com. You'll also find us on CompuServe/ZDNet (GO ZNT:PCC), Microsoft Network (GO PCCOMPUTING), and America Online/ZDNet (KEYWORD ZDNET).

Faster Than A Pentium!

Time for a desktop upgrade into the fast lane! This month we're giving away a fully loaded Cyrix 6x86 desktop screamer and all the software you need to get started. Stop by our Web site for a chance to win.

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Mail

PULP OR PIXELS?

Paper Still Rules

John C. Dvorak doesn't want me to renew my subscription to *PC Computing.* As he explains in his July column ("Pipe Dreams," page 49), there's no need to subscribe to print publications when you can get them free on the Web. Maybe we can truly enjoy Web publications and save trees and money when a high-resolution, magazine-size device exists. But for now I'll keep my paper edition of *PC Computing.*

DAVE MORRIS
VIA THE INTERNET

Faster Pages with FTP

I agree with John C. Dvorak in his July column that the Web is getting more graphical and clogged ("Pipe Dreams," page 49). It often takes several minutes to get just one Web page loaded. I think using FTP services is a better alternative. You can access your files without waiting for complicated pages to load.

CHRISTIAN MCARTHUR
VIA THE INTERNET

Who Owns E-mail?

In response to the question you asked at the end of your July Mail section (page 26)—"Should companies be allowed to read employees' e-mail?"—my answer is yes, absolutely. The e-mail system is a company asset just like a fax machine, copier, and other business equipment. Permission to use these devices is always an employee privilege that is granted by the employer.

ROBERT SULLIVAN
VIA COMPUSERVE

The Employer?

At the heart of the debate about whether or not employers should be allowed to read employees' e-mail is the amount of trust a company is willing to put in its employees' maturity and professionalism. If a company pays for equipment or software, then it has the right and responsibility to manage its investment.

However, only if it's demonstrated that an employee is breaching ethics, committing crimes, or abusing trust do I think it's acceptable to investigate by reading someone's e-mail. As an employer, I don't approve of the electronic equivalent of random, unannounced drug testing.

MARK A. GODUTO
VIA AMERICA ONLINE

Or the Employee?

At the end of your July Mail section you asked whether companies should be allowed to read employees' e-mail (page 26). I definitely don't think so. Employees should be entitled to the same privacy for their e-mail as they would receive for a letter they send through the U.S. Postal Service. Companies and owners don't read sealed envelopes—at least I hope they don't—and e-mail messages should be no different.

DAVID RIENTJES
VIA THE INTERNET

HP NETSERVERS

Expert Opinion

Your July feature "Instant Windows 95 Expert" (page 138) wasn't what I expected. I had anticipated expert tips for an expert user.

STEVE GORE
VIA THE INTERNET

THE INSTANT WINDOWS EXPERT series was a Cliffs Notes for Windows 95—quick, skimmable, and of value for users at every level of experience. But don't worry, we've got exactly the sort of expert tips you're looking for in our 5th Annual Windows Superguide. It starts on page 120 of this issue.

Hacking for Dollars

In your July "Radar" (Pulse, page 31) you mention that some companies are paying people to try to break into their Internet and network security systems. I find this interesting. Do you have the names of those companies?

BILL CHAISON
VIA THE INTERNET

THE MOST RECENT company to advertise a contest like this was Network Engineering Technologies in San Jose, California. It offered $10,000 to anyone who could penetrate the company's firewall. According to the company, there were over 54,000 unsuccessful server break-in attempts. Check out the contest rules and results at www.thefirewall.com.

OnNow Is Nothing New

In your July story on the Universal Serial Bus ("All Aboard the Bus," Pulse, page 30) you mention the new OnNow technology, a software initiative that brings your computer to life in 3 to 5 seconds. I know IBM isn't tops in the PC market, but my lowly 486 IBM Aptiva is over a year old and has a feature called Rapid Resume that does the same thing.

BRIAN SWICK
VIA THE INTERNET

THE ONNOW INITIATIVE is similar to IBM's Rapid Resume. The only problem with previous incarnations of this idea (laptop makers have

been doing it for years) is that every PC company does it differently. The OnNow technology marks the first effort to standardize this feature.

1,001 Free Downloads

I recently visited your Web site, but I couldn't figure out how to access the 1,001 free downloads you listed in your July feature ("Amazing Free Stuff," page 100). Where can I find those downloads?

FRANK G. FOX
VIA THE INTERNET

IF YOU VISITED OUR SITE in early June and were using an older browser that doesn't support frames, you probably couldn't see the downloads. Since then we reposted all 1,001 of them and created three new versions of our Web site. The content of the three versions is identical, and at least one of them should be viewable with your browser. If you didn't

get your free stuff the first time, go back to www.pccomputing.com and enjoy.

Flip the Switch

Please help me settle an ongoing debate at my workplace: Is there any significant reason to leave personal computers and peripherals running continuously? Or is it better to turn them off at night? My coworkers and I have been unable to get a definite answer from anyone.

MICHAEL LEGERE
VIA THE INTERNET

NEITHER OPTION really has a downside. Turning your system on and off frequently can shorten the life of your hard drive, but not significantly. Meanwhile, the monitor is the most energy-hungry part of any PC, so turning it off—even if you leave the CPU on—is a smart way to save on electricity costs and extend the life of your monitor.

Clocks in at
10,000 words per minute.*

Life's Too Short to Wait

When reading your June feature "Inter-

browser appears. When you want to use PCN again, you have to maximize the PCN window. It's beta version here's still room t.

you published a let-lamenting that Win-support the parallel e Iomega Zip drive T?" Mail, page 29). driver for some time parallel port version der Windows NT. I Iomega's Web site, and it's been work-

GABE NELL
VIA THE INTERNET

NY for you to to download FTP site (http:// support/ftp.html).

PCN doesn't seamlessly integrate with other browsers. But when I installed the software it asked me the location of my Internet browser, complete with a browse button.

MICHAEL RYAN
VIA THE INTERNET

THE EARLY BETA VERSION of PCN that we tested didn't ask for our browser's location. Instead it forced us to use the PCN browser. The current release, however, asks for a browser location, but the integration isn't smooth. To surf the Web, you minimize the PCN window and your

For the Record

The free version of SoftQuad HotMetal listed in our August "200 Killer Web Tools" table (page 138) doesn't offer file importing and an HTML tutorial. Hot-Metal Pro 2.0 includes those features and is available from SoftQuad (416-239-4801) for $195.

In our July "Free Stuff!" section (page 314), we incorrectly named the creator of the shareware game Super Pong 95. This game was created by Action Software. Atari does not produce, market, or license the game, which might infringe on several trademarks, patents, and copyrights owned by Atari.

WHAT DO YOU E-SHOP FOR ON THE WEB? Send your thoughts about this and other subjects to Mail, *PC Computing*, 50 Beale St., 13th Floor, San Francisco, CA 94105; Internet, 72241.1724@compuserve.com; or CompuServe, 72241,1724. Letters may be edited for length and clarity.

Clocks in at
10,000 word

Life's Too Short to Wait

When reading your June feature "Internet at Warp Speed," I was disappointed with the review on cable modems (page 133). It gave me the impression that cable modems will be faster than anything else with today's phone lines. It also implied that T1 lines are the ultimate lines available now. This is untrue. In my experience, the phone company is willing to lease you a T3 phone line that handles data at a rate of approximately 45Mbps—significantly faster than the promised speed of cable modems, and with the additional advantage of currently being available. After all, life's too short to wait, right?

JOHN STEINBOCK
VIA COMPUSERVE

COMPARING THE BANDWIDTHS of cable TV lines and leased T3 phone lines misses the point. Cable TV lines are already installed in more than 60 percent of American homes and can easily be installed in most small businesses. T1 or T3 phone lines are typically limited to large corporations, by cost if not geography. Yes, T1 and T3 are available, but they're hardly conduits for the masses.

A Point About PointCast

PC Computing is a great magazine and I especially enjoy the online version. I have a problem, however, with your review of PointCast Network (PCN) in the July issue ("Free News to Your Desktop," page 85). You write that PCN doesn't seamlessly integrate with other browsers. But when I installed the software it asked me the location of my Internet browser, complete with a browse button.

MICHAEL RYAN
VIA THE INTERNET

THE EARLY BETA VERSION of PCN that we tested didn't ask for our browser's location. Instead it forced us to use the PCN browser. The current release, however, asks for a browser location, but the integration isn't smooth. To surf the Web, you minimize the PCN window and your browser appears. When you want to use PCN again, you have to maximize the PCN window. It's better than the beta version we tested, but there's still room for improvement.

Add Zip to NT

In your June issue you published a letter from a reader lamenting that Windows NT didn't support the parallel port version of the Iomega Zip drive ("No Zip with NT?" Mail, page 29). I've been using a driver for some time that lets me use the parallel port version of the Zip drive under Windows NT. I found the drive on Iomega's Web site, www.iomega.com, and it's been working great for me.

GABE NELL
VIA THE INTERNET

THE EASIEST WAY for you to get this driver is to download it from Iomega's FTP site (http://206.65.85.218/support/ftp.html).

For the Record

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Pulse Pocket-Change PCs,

The Internet Comes Home

A computer on every desk and in every home—it's a mantra that technology masterminds have chanted for over a decade. But for the last few years an average, fully stocked computer has cost about $2,000—a price that's kept it from becoming a common household item. Enter the $500 computer: a small, Internet-ready box that's cheap enough for most budgets. After being hyped for years it's finally here—priced as promised—and with enough muscle to do more than just surf the Web.

Called networked computers, these bargain machines have a simple premise: You get a box with a processor, some RAM, a few megabytes of storage, and a killer connection to the Internet or your office server. Instead of loading files and applications off your hard drive, the box reads them from a remote server.

Networked computers are available in several versions, from scaled-down desktops to

add-ons that turn your TV into a Net cruiser. One such device, developed by View-Call America, is a $299 Web-only machine with no storage system at all. It plugs into your entertainment center, letting you surf the Net from your couch via the included remote control.

Sun Microsystems, too, has announced it may release

machines with no storage system. Instead the units would download their operating systems when they're switched on—which could mean a five to ten minute start-up time, depending on your connection speed. Most of the programs for these devices would be downloadable Java apps that run in RAM, which means that it may be impossible

Internet for Everyone: The car, the television, and the $500 Internet PC—at these prices, networked computers may soon become a household staple.

Online Collaboration
(users in millions)

- Lotus Notes
- Internet Groupware

SOURCE: IMPUT

Teamwork: The number of Internet groupware users is expected to surpass that of Lotus Notes clients by the year 2000.

Web Site Expenses
(percentage of total costs)

- Server
- Support
- Training
- Network

SOURCE: CREATIVE NETWORKS

Cost of Doing Business: Small surprise that many businesses have stale Web sites. The average cost per year to maintain a corporate Web site is $109,000, mainly due to server and support costs.

Net Phones
(Internet telephony users in millions)

SOURCE: IDC

Please Hold: Unless pending legislation to restrict Internet phones passes, nearly 16 million people will place phone calls over the Web by the end of the decade.

PHOTO ILLUSTRATION BY PETER ALAN GOULD PHOTO COURTESY OF PPG

One-Stop Web Servers

to use more than one application at a time.

Some networked computers have enough number-crunching power for the office. A handful of machines are coming out that have their own processor and some storage, but run most applications from the office server.

A good example is the $750 @workStation from HDS Network Systems. The machine looks like an 11-inch-square pizza box and has a RISC processor, a smattering of memory, a PC Card (used primarily to store its Web browser's cache file), and HDS's own stripped-down network operating system. It's equipped to work with most popular network operating systems and virtually all major Internet standards, including HTML and 128-bit encryption security, so you can run Windows, Unix, Java, and other operating systems and applications from the server.

One drawback to a setup like this? Speed. Since everyone's apps are running off the same server, performance can nose-dive when just a handful of users work at the same time. If your office uses performance-intensive apps, you might spend more money on an awesome server setup than you would by outfitting everyone with their own fully packed PC.

A networked computer may not be your dream PC, but it may eventually be your employer's choice. Once you factor in training, support, and software upgrades it costs most companies $5,000 or $8,000 a year to keep a full-featured PC on your desk. Networked computers could cut these costs by as much as $1,500 a year. **MH**

Complete Web Toolkit

If you're shopping around for a **Web server,** consider the **networkMCI WebMaker,** an all-in-one hardware and software solution for Internet access. WebMaker includes a **200MHz Pentium Pro** server and Intel's management, monitoring, and diagnostic software; Microsoft Windows NT; and various Internet servers and Web-authoring tools from Netscape Communications. **RS**

networkMCI WebMaker / MCI / (800) 503-7771 / less than $10,000 depending on configuration / Reader Service No. 605
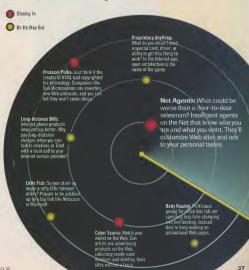
RADAR: Secret Agents, Web Con Artists
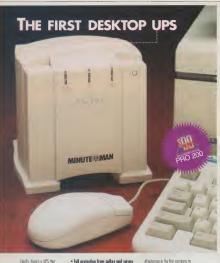
What's on the scope? If a blip is near or moving toward the middle of the radar screen, check it out. If it's moving off the screen, steer clear for now.

● Closing In
● On Its Way Out

Proprietary Anything: What do you mean I need a special card, driver, or utility to get this thing to work? In the Internet age, open architecture is the name of the game.

Protocol Polka: Just think if the creator of HTML had copyrighted his technology. Companies like Sun Microsystems are inventing new Web protocols, and you can bet they won't come cheap.

Net Agents: What could be worse than a door-to-door salesman? Intelligent agents on the Net that know who you are and what you want. They'll customize Web sites and ads to your personal tastes.

Long-distance Bills: Internet phone products keep getting better. Why pay long-distance charges when you can talk to relatives in Tibet with a local call to your Internet service provider?

Little Fish: So your start-up made a nifty little Internet utility? Prepare to be gobbled up by a big fish like Netscape or Microsoft.

Baby Kissing: Politicians pining for office this fall are spending less time stumping and feet beating. Instead they're busy working on promotional Web pages.

Cyber Scams: Watch your wallet on the Web. Con artists are advertising products on the Web, collecting credit-card numbers and deleting their sites without a trace.

Better Than Java

If you wish you could build eye-catching multimedia animations, but don't have the patience for a powerful program like Macromedia Director, check out **Corel Click & Create**. It offers almost as much **multimedia muscle** as Director, but it doesn't require scripting. Import elements like **animation, movies, and graphics** and link them in the graphical spreadsheetlike storyboard. When you're finished, save your creations as files that any PC can run. JL

Click & Create / Corel Corp. / $499 est. street price / (800) 455-3169 / *Reader Service No. 614*

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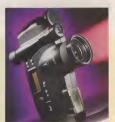
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Smile for the Computer

Why waste time and money on film? The second wave of digital cameras is here with enhancements like PC Card storage and better resolution.

DC20 Kodak Digital Science's compact, $350 DC20 offers 24-bit color and 1MB of storage (enough to hold 16 photos). It's a simple point-and-shoot model that comes with lots of software, including Kai's Power Goo, a new image-manipulation package from MetaTools.

PDC-2000 A step up in image quality, the Polaroid PDC-2000 (shown above) offers an impressive 1,600-by-1,200-pixel resolution. There are three models, each with different storage capacities. The high-end model tops out at 60MB. All three include a feature that records images with a time and date stamp. The catch? Prices range from $2,295 to $4,495 depending on the storage capacity and other options.

PowerShot 600 Canon's new low-cost PowerShot 600 has plenty of power under its retro steel shell. The camera's PC Card slot holds removable storage cards that accommodate up to 170MB, or hundreds of shots. The camera also has built-in voice annotation and a maximum resolution of 832 by 608 pixels. JL

DC20 / Kodak Digital Science / $350 est. street price / (800) 235-6325 / *Reader Service No. 611*

PDC-2000 / Polaroid Corp. / $2,295 to $4,495 est. street price / (800) 816-2611 / *Reader Service No. 612*

PowerShot 600 / Canon / $949 est. street price / (800) 848-4123 / *Reader Service No. 613*

Contributors to Pulse: MIKE HOGAN, NAOMI GRAYCHASE, LIESL LAGRANGE NOBLE, *and* RICH SCHWERIN. *Edited by* JACK LYON.

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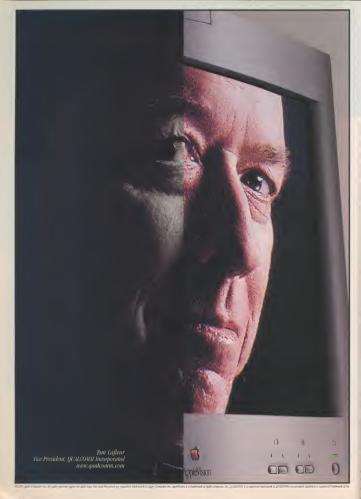
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As V.P. and resident visionary for QUALCOMM—one of the brightest stars in digital wireless communications—Tom Lafleur is finding innovative ways to stay ahead of his company's phenomenal growth with the help of the World Wide Web and Apple® Macintosh® computers. In fact, Tom started QUALCOMM's Intranet by running one of their own products on a Mac™—Eudora™, which has since become the most popular e-mail software for the Net. Today, people are using Macintosh to easily create web pages and share details of their projects with the rest of the organization. So engineers have instant insight into manufacturing problems, can pull up drawings and quickly resolve issues. Which has slashed the need for paper. Cut support costs. And sparked unprecedented collaboration. Not to mention knocking a few walls down along the way.

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Server
Reseller

Apple Premium Server Resellers are available to help you determine which solutions are best for your business

A-List

	Top Pick	The Buzz	The Stats*	More Info
Systems				
High-Performance Pentium	Gateway P5-200CDR	Windows at 200MHz? Once you've been there, there's no turning back. This P5 200 even includes a CD-R drive.	$3,899, 200MHz Pentium, 16MB RAM, 2.5GB, 8X CD-ROM.	July 1996, page 57 (888) 888-2008 Reader Service No. 618
High-Performance Pentium Pro	Micron Millennia Plus Pro 200	Power that will rock you back on your heels. Feed it native 32-bit apps only.	$4,407, 200MHz Pentium Pro, 32MB RAM, 2GB hard drive.	June 1996, page 70 (800) 362-7309 Reader Service No. 619
Desktop Workhorse	Micron Electronics P166 Millennia	The performance you crave at a price that won't make you flinch.	$2,349, 166MHz Pentium, 16MB RAM, 2.1GB, 8X CD-ROM.	July 1996, page 161 (800) 362-7309 Reader Service No. 620
Low-Cost Desktop PC	Dell Dimension P133v	Priced so low even your cheapest relatives will bite.	$1,649, 133MHz Pentium, 16MB RAM, 1.6GB, 8X CD-ROM.	Stay tuned. (800) 695-5059 Reader Service No. 621
SOHO System	Compaq Presario 9240	Command central for any home office: manages your fax, voice, and e-mail messages while you get down to work.	$2,428, 133MHz Pentium, 16M8 RAM, 1.2GB hard drive.	May 1996, page 83 (800) 345-1518 Reader Service No. 622
High-Performance Web Server	Hewlett-Packard Vectra XU 6/200	The hottest NT Web box you can buy—with room for a second processor and acres of storage.	$5,165, 200MHz Pentium Pro, 32M8 RAM, 2GB hard drive.	June 1996, page 70 (800) 322-4772
Pricewise Direct System	HiQ Computer Systems C166+ PowerStation	This 133MHz 6x86 runs faster than many 166MHz Pentiums. Are you feeling the heat yet, Intel?	$2,159, 133MHz 6x86, 16M8 RAM, 2.1GB hard drive.	June 1996, page 66 (800) 827-5836 Reader Service No. 623
Network Servers				
	Compaq ProSignia 300 5/90 Model 2100	Who needs an information systems department? This server is so well designed, it runs itself.	$3,749, 90MHz Pentium, 32MB RAM, 2GB hard drive.	Nov. 1995, page 138 (800) 345-1518 Reader Service No. 624
	Digital Prioris LX 590	Not only is it the fastest server to hit our test bench, it's also a steal.	$2,300, 90MHz Pentium, 32MB RAM, 4X CD-ROM drive.	Dec. 1995, page 158 (800) 344-4825 Reader Service No. 625
	Compaq ProLiant 1500	A server so smart and efficient you'll wonder how you ever managed without it.	$12,589, 166MHz Pentium, 128MB RAM, two 2.1GB SCSI-2 drives.	Dec. 1995, page 158 (800) 345-1518 Reader Service No. 626
	Hewlett-Packard NetServer 5/133 LS2	It's simple: The NetServer is the fastest, most versatile network server around.	$20,204, two 133MHz Pentium CPUs, 128MB RAM, five 2.1GB SCSI drives.	March 1996, page 158 (800) 322-4772
Portables				
Portable Desktop Replacement	Toshiba Tecra 720CDT	The follow-you-around office: 133MHz Pentium, removable six-speed CD-ROM drive, and 12.1-inch hi-res display.	$6,299, 133MHz Pentium, 16MB RAM, 1.13GB hard drive.	June 1996, page 69 (800) 457 7777 Reader Service No. 627
Lightweight Traveling Notebook	IBM ThinkPad 560	Thin is in. Get a glorious 12.1-inch display in a box so slim you'll take it everywhere.	Starting at $2,699, 120MHz Pentium, 8M8 RAM, 810MB hard drive.	July 1996, page 52 (800) 426-7255 Reader Service No. 628
Low-Cost Color Portable	Canon Innova Book 360CD	A multimedia notebook for under three grand? We'll take it.	$2,599, 133MHz AMD 5x86, 8M8 RAM, 4X CD-ROM drive.	August 1996, page 146 (800) 848-4123, ext. 904 Reader Service No. 629
Multimedia Notebook	Compaq Armada 4100	Strip it down and it's an ultraportable note taker; add the expansion base and it's a multimedia powerhouse.	$4,999, 120MHz Pentium, 16M8 RAM, 1.08GB hard drive.	August 1996, page 69 (800) 345-1518 Reader Service No. 630
State-of-the-art Portable	IBM ThinkPad 760CD	If James Bond carried a portable, this would be it. It packs more features than your average desktop PC.	$6,899, 120MHz Pentium, removable 4X CD-ROM drive.	March 1996, page 183 (800) 426-7255 Reader Service No. 631

*ESTIMATED STREET PRICE

		Top Pick	The Buzz	The Stats*	More Info
Desktop Printers	Desktop Laser Printer	Hewlett-Packard LaserJet 5MP	Still the smartest, easiest desktop printer in its class. Plus, who needs cables? Beam jobs to the infrared port instead.	$1,099, 6 ppm, 600 dpi, PCL 5 (PostScript optional), infrared port.	Dec. 1995, page 158 (800) 752-0900
	Low-Cost Color Printer	Canon BJC-4100	Get crisp vibrant hues for just pennies per page. At these prices, everyone can afford color.	$229, 720-by-360-dpi black, 360-dpi color.	Feb. 1996, page 140 (800) 848-4123 Reader Service No. 632
	Desktop Color Printer	Hewlett-Packard DeskJet 855CSE	Near–laser-quality color output for a tenth of the price.	$499, 600 dpi, 7-ppm black, 3-ppm color.	Feb. 1996, page 140 (800) 752-0900
	Portable Printer	Citizen PN60	Slip it in your briefcase, then wow clients when you produce color pages on the spot.	$299, 360-dpi thermal transfer, 1.5 pounds.	Feb. 1995, page 64 (310) 453-0614 Reader Service No. 633
Network Printers	Desktop Laser Printer	Hewlett-Packard LaserJet 5Si MX	Even 50-page print jobs fly out faster than you can trot down the hall to claim them.	$3,899, 24 ppm, 600 dpi, PCL 5e, PostScript Level 2.	Feb. 1996, page 156 (800) 533-1333, ext. 1615
	High-Speed Network Color Printer	Lexmark Optra C	Lightning-fast color laser output for just 17 cents per page.	$6,150, 12-ppm black, 3-ppm color.	April 1996, page 115 (800) 891-0399 Reader Service No. 634
	Low-Cost Network Color Printer	Hewlett-Packard DeskJet 1600CM	Churns out brilliant color pages more speedily than you can produce them.	$1,999, 9-ppm black, 4-ppm color.	Nov. 1995, page 172 (800) 533-1333, ext. 1615
Video	High-Resolution 20- or 21-Inch Monitor	Sony Multiscan 20sfII	Think big. This 20-inch bargain gives you enough room to view six windows at a time.	$1,799, 20-inch, 1,280 by 1,024 pixels at 75Hz, Plug and Play.	June 1996, page 156 (800) 352-7669, ext. 119
	High-Resolution 17-Inch Monitor	Samsung SyncMaster 17 GLsi	Why settle? See what you've been missing in Windows with this 17-inch bargain.	$779, 1,280 by 1,024 pixels at 80Hz.	August 1996, page 155 (800) 933-4110 Reader Service No. 636
	High-Resolution Graphics Accelerator	Matrox MGA Millennium	Ultrafast window RAM and 3-D acceleration make this the graphics card to covet.	$399, 4M8 WRAM, 1,280 by 1,024 pixels at 76Hz, PCI interface.	April 1996, page 149 (800) 683-4353 Reader Service No. 637
Storage	Removable Storage	Iomega Jaz Drive	The easiest, most affordable way to put a gigabyte in your pocket. If you see one, buy it.	$499 (internal), $599 (external), SCSI-2 and EIDE.	April 1996, page 53 (800) 697-8833 Reader Service No. 638
	CD-ROM Drive	NEC MultiSpin 4Xc	The best bargain around: Queue up seven discs in this quad-speed jukebox for the price of a single-disc drive.	$349, SCSI interface, seven-disc changer.	Dec. 1995, page 158 (800) 632-4636 Reader Service No. 639
	CD-Recordable Drive	Smart and Friendly CD-R 1002	Imagine the possibilities: Put your hard drive on a disc or mix your own audio CDs.	$599 (internal), $699 (external).	July 1996, page 300 (800) 959-7001 Reader Service No. 640
	Network Storage	Mega Drive Systems MR5 RAID Disk Array	Don't let a dead hard drive take your business down with it. This is bulletproof backup and storage for your network.	$12,345, 5GB RAID array.	Nov. 1995, page 186 (800) 404-6342 Reader Service No. 641
Peripherals	Personal Scanner	Visioneer PaperPort Vx	The quickest way to tame your paper in-box. It moves paper off your desk and onto your hard drive in seconds.	$299, 400 dpi, document management software.	This issue, page 324 (800) 787-7007, ext. 107 Reader Service No. 642
	Multimedia Sound Card	Creative Labs Sound Blaster AWE32 PnP	Makes games so real you'll duck when bullets sing past your head. Oh yeah, it's great for business multimedia, too.	$250, 32-voice polyphony, 16-bit DSP.	Jan. 1996, page 173 (800) 998-5227 Reader Service No. 643
	High-speed Fax Modem	U.S. Robotics Courier I-Modem	A bridge to the future—get a 28.8Kbps analog and ISDN modem in one.	$500, ISDN and V.34 (28.8Kbps).	June 1996, page 118 (800) 342-5877 Reader Service No. 644

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TO ANYONE ELSE THIS IS A FINISH LINE. TO US IT'S A STARTING BLOCK.
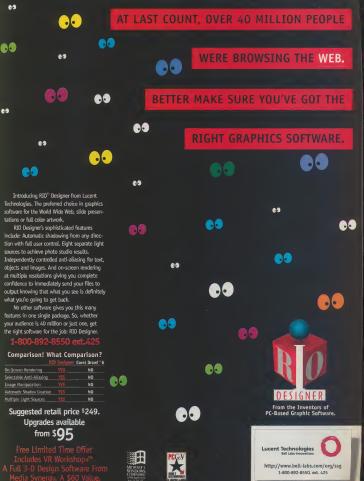

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Lotus
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A-List

		Top Pick	The Buzz	The Stats*	More Info
Desktop Applications	Software Suite	Microsoft Office for Windows 95	If you buy only one software title, this should be it. For Web publishing, download the new Internet Assistants.	$499 (Standard Edition), 28MB to 89MB hard disk space.	Sept. 1995, page 83 (800) 426-9400 Reader Service No. 645
	Word Processor	Microsoft Word for Windows 95	The de facto standard for businesses everywhere. For smart version control, check out Lotus's Word Pro.	$339, Windows 95 or Windows NT 3.51, 8MB RAM.	June 1996, page 149 (800) 426-9400 Reader Service No. 646
	Spreadsheet	Microsoft Excel for Windows 95	It's a one-horse race, folks, and guess who's winning?	$339, Windows 95 or Windows NT 3.51, 8MB RAM.	Dec. 1995, page 158 (800) 426-9400 Reader Service No. 647
	Database	Microsoft Access for Windows 95	Finally! You don't have to know a line of code to put this database to work. Plus, check out the new Internet Assistants.	$339, Windows 95 or Windows NT 3.51, 12MB RAM.	Jan. 1996, page 162 (800) 426-9400 Reader Service No. 648
Graphics Applications	Presentation Graphics	Microsoft PowerPoint for Windows 95	Build a winning sales presentation on your lunch hour—then publish and deliver it on the Web.	$339, Windows 95 or Windows NT, 14MB to 35MB hard disk space.	March 1996, page 183 (800) 426-9400 Reader Service No. 649
	Desktop Publishing	Microsoft Publisher for Windows 95	Create terrific-looking pages without even trying. Now where's our Web version?	$80, 386 CPU, 8MB RAM, 6MB hard disk space.	Dec. 1995, page 158 (800) 426-9400 Reader Service No. 650
	Professional Publishing	QuarkXPress 3.32 for Windows	Produces pages as slick as the ones in your hands. Stay tuned for an upgrade to PageMaker with Web smarts this fall.	$570, 386 CPU, 4MB RAM, 6MB hard disk space.	Dec. 1995, page 158 (800) 788-7835 Reader Service No. 651
	Illustration Program	CorelDraw 6	The all-in-one graphics toolkit for Windows 95: Draw, edit, and design your own masterpieces.	$525, Windows 95, 486 CPU, 8MB RAM.	April 1996, page 101 (800) 772-6735 Reader Service No. 652
	Image Editor	Adobe Photoshop 3.0 for Windows	A digital darkroom for your PC. For a performance boost, check out the new Windows 95/NT upgrade.	$549, 486 CPU, 10MB RAM, 20MB hard disk space.	April 1996, page 101 (800) 833-6687 Reader Service No. 653
Finance	Personal Finance Manager	Intuit Quicken Deluxe 5 for Windows	Meet your new e-teller: This is branch-office checking from your hard drive.	$60, 386 CPU, 4MB RAM, 7MB hard disk space.	Feb. 1996, page 159 (800) 624-8742 Reader Service No. 654
	Business Accounting	Intuit QuickBooks Pro 4.0	Fire your CPA! QuickBooks has everything you need to balance the books.	$189, 486 CPU, 4MB RAM, 12MB hard disk space.	July 1996, page 169 (800) 624-8742 Reader Service No. 655
	Online Stock Manager	E*Trade Group E*Trade	Better than a broker: Place trades and research stocks from your computer—24 hours a day.	$14.95 per trade for up to 5,000 shares.	August 1996, page 93 (800) 786-2575 Reader Service No. 656
Tools and Utilities	OCR Software	Caere OmniPage Pro 7.0	OCR the easy way: Scan in documents and turn them into editable text in just seconds.	$499, Windows 95, 8MB RAM, 15MB free hard disk space.	July 1996, page 78 (800) 736-5735, ext. 40 Reader Service No. 657
	Antivirus Software	TouchStone Software PC-cillin 95	Find rogue viruses where they find your hard drive's boot sector. This scanner gives you Internet updates, too.	$50, Windows 95, 486 CPU, 8MB RAM.	This issue, page 198 (800) 932-5566 Reader Service No. 658
	Fax-Communications Software	Symantec Delrina CommSuite 95	One launchpad for all your online fixes. Sends e-mail and faxes, too.	$99, 486 CPU, 8MB RAM, 30MB free hard disk space.	Nov. 1995, page 83 (800) 441-7234 Reader Service No. 659
	System Utility	Symantec Norton Utilities for Windows 95	Resuscitates dead files and diagnoses hardware problems before they happen. Everyone should have a copy.	$119, Windows 95 or Windows 3.1, 486 CPU, 8MB RAM.	Dec. 1995, page 158 (800) 441-7234 Reader Service No. 660
	Compression Utility	Nico Mak WinZip 6.1	Take back your hard drive and squeeze file transfers down to size with this Windows compression utility.	$29, Windows 95 or Windows 3.1, 486 CPU, 8MB RAM.	May 1996, page 134 (800) 242-4775 Reader Service No. 661
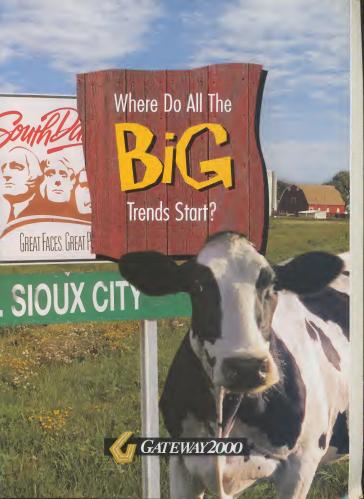
*ESTIMATED STREET PRICE

Internet A-List

	Top Pick	The Buzz	The Stats*	More Info
Web Browsers and Add-ins				
Web Browser	Netscape Navigator 3.0	The best-known browser is also the most powerful. Download the latest version via www.pccomputing.com.	$49, Windows 95 or Windows NT, 4MB RAM, Internet access.	August 1996, page 66 (800) 638-7483 Reader Service No. 662
Browser Plug-in	Progressive Networks RealAudio Player 2.0	What's the Web sound like? Find out with this free add-in.	Free, Windows 95 or Windows NT 3.51, 8MB RAM.	May 1996, page 59 (800) 230-5975 Reader Service No. 663
Internet Access Control	InterGo Communications InterGo	Why let the Feds censor the Net? Filter out the riffraff and get right to the best resources with this smart browser.	$50, Windows 95 or Windows 3.1, 4MB RAM.	July 1996, page 250 (214) 424-7882 Reader Service No. 664
Newsgroup Reader	Forté Free Agent	Sort the gems from the junk, and keep your connect costs down with Forté's free offline newsgroup reader.	Free, Windows 95 or Windows 3.1, Internet access.	August 1996, page 318 (619) 431-6400 Reader Service No. 665
Application Add-in	Microsoft PowerPoint Viewer	Turns PowerPoint presentations into Java-like applets for publishing on the Web—for free. No programming needed.	Free to registered users of Microsoft Office.	July 1996, page 115 (800) 426-9400 Reader Service No. 666
Secure Internet E-mail	Qualcomm Eudora Pro 3.0	Are you crazy? Let just anyone read your e-mail? Keep it private with Eudora's encryption.	$59, Internet access.	Nov. 1995, page 200 (800) 238-3672, ext. 86097 Reader Service No. 667
Internet Search				
	Digital Alta Vista	If it's out there, Alta Vista will find it. Check it out at www.altavista.digital.com.	Free, Internet access.	May 1996, page 68 (800) 336-7890 Reader Service No. 668
	Quarterdeck WebCompass Personal Edition	Find what you're looking for faster; enter a query and WebCompass finds it, organizes it, and stores it for you.	Free, Windows 95 or Windows 3.1, 486 CPU, 8MB RAM.	March 1996, page 106 (800) 683-6696 Reader Service No. 669
Web Communications				
Web Phone	Quarterdeck WebTalk	Everything you need to make free phone calls on the Web—try it while it's still legal.	$50, Windows 95, 486 CPU, 8MB RAM, Internet access.	May 1996, page 66 (800) 683-6696 Reader Service No. 670
Web Video-conferencing	White Pine Enhanced CU-SeeMe 2.01	For those times when e-mail is too impersonal: Turn your PC into a smart videophone.	$69, Internet access, video camera required.	August 1996, page 96 (800) 241-7463 Reader Service No. 671
News Service	PointCast Network 1.0	Custom news feeds and stock quotes delivered right to your desktop. Serves up sports scores and horoscopes, too.	Free, Internet access.	July 1996, page 85 (800) 586-4733 Reader Service No. 672
Net Services				
Online Service	America Online	The most civilized of the big national online services.	$9.95 per month for 5 hours, $2.95 for each additional hour.	Jan. 1996, page 179 (800) 827-6364 Reader Service No. 673
Internet Service Provider	NetCom On-Line	You can find cheaper rates from local ISPs, but for fast, reliable service anywhere, NetCom is the ticket.	$19.95 per month.	Jan. 1996, page 179 (800) 638-2661 Reader Service No. 674
Web Development Tools				
Web Publisher	Microsoft FrontPage 1.1	The most usable, graphical Web page publisher you can buy. Watch for Adobe PageMill for Windows this fall.	$149, Windows 95, 486 CPU, 8MB RAM.	August 1996, page 112 (800) 426-9400 Reader Service No. 675
HTML Editor	Anawave HotDog Professional 2.0	The Web publisher to have when only brute-force HTML editing will do. Web publishing newbies need not apply.	$50, Windows 95 or Windows 3.1, 4MB RAM.	August 1996, page 131 (800) 771-6030 Reader Service No. 676
Web Server Software	Microsoft Internet Information Server	The best way to put your NT box on the Net—and it's free with NT Server.	Free with $699 NT Server (no clients), 386 CPU, 16MB RAM.	August 1996, page 131 (800) 426-9400 Reader Service No. 677
Web Animation Software	Macromedia Shockwave	The premier multimedia authoring tool for CD-ROMs and the Web. Converts existing Director files to Web code, too.	Free with $850 Macromedia Director 5.	August 1996, page 131 (800) 945-9360 Reader Service No. 678

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Big Digital Lie

What's the worst PC productivity sapper of all? Buggy rush-it-to-market software? Oddball legacy hardware? Absurdly pinched bandwidth? Doom II? Lotus Notes? Nah. The new villain these days is *discoverability*. Or lack of it. It's like Dorothy's ruby slippers. Instead of schlepping all the way to Oz she could have returned home just by clicking her heels (she should have read the manual). It doesn't matter how much power you have if you don't know it's there or how to use it.

Microsoft maintains a "Wish Line" database of features that customers suggest for future releases. Sheepishly, it admits that over 25 percent of the "new" features users propose *already exist* in current products. Users just don't know they're there.

This isn't surprising. Most popular software today is what the industry calls "mature" (which means old, bloated, and flabby). Each successive rev lards on more new features and a whole additional level of complexity and inscrutability. But even Microsoft, the clear leader in making software truly usable, blew it big-time with Windows 95. Important operating system features are still deeply submerged, enigmatically named, badly indexed, and frequently located in strange places. Finding something is often like a perverse and frustrating game, except in this case the thing you want to blast to bits is the design team.

Horror Show The Web is a prime discoverability nightmare. There's no way users can tell by glancing at a home page how vast and rich a site is, or what deeply useful or interesting data lies buried inside. Home pages either downplay site contents with generic, uninformative buttons, or else try to cram so much breathless plugola onscreen that it all ends up looking gridlocked and unappealing.

Why is this all so difficult? One big reason is small screens. Most users today are mired in a 640-by-480 or 800-by-600 world. Their bosses are too cheap to buy them large monitors that

Paul Somerson

Users mindlessly click it—**wham!**—like those midway games where you whack **plastic gophers** with mallets.

would pay for themselves in quick productivity gains. Factory settings normally lop off lots of real estate with cryptic buttons and gimmicky doodads many people rarely use. These are usually customizable, but users don't know it, are too lazy to make changes, or can't figure out how. Switching to a 20- or 21-inch monitor with some real breathing room is worth every cent.

But the heart of the problem is the Big Digital Lie that the Windows interface, stolen from the Mac interface, stolen from the Xerox PARC interface, is the answer. In a contrary way even DOS was better. Its vacant C> prompt was so utterly mysterious and confounding that it forced users to actually read a manual or a book and learn a few commands. Since users can stumble around enough with Windows, they rarely teach themselves any of the finer points or uncover the real underlying power.

Bad Sign This is even truer with the brain-dead simplicity of Web navigation, which doesn't bode well for future discoverability, considering that Microsoft is cleverly making its next Windows upgrade look and work like a Web browser. A link appears and users mindlessly click it—*wham!*—like those midway games where you whack plastic gophers with mallets as soon as they pop up. It's just not possible to jam hundreds of features into a handful of top-level menus or buttons.

As a result, instead of plunging in, users merely skim the wave tops. They rely on inefficient brute-force techniques instead of taking advantage of hidden shortcuts. And they just plain miss tons of resources.

Few users crack open the documentation, and most skip any gooney one-size-fits-all tutorials. Training is a neglected necessity. Manuals still stink. Online help is still pathetic. Developers need to make software do more of the heavy lifting, with more solutions-oriented wizards and smart helpers rather than just armloads of hard-to-find tools.

OK, OK, this is old news. What apps and home pages truly need are graphical "showrooms" that highlight the key features and let you take them out for a quick test drive. Providing such an enticing tour of all the goodies buried inside is the only way to make them easily discoverable.

And that's the truth.

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Grand Slam

I suppose the third time's a charm regarding IBM's newest laptop, the ThinkPad 560. It's a marvel of engineering matched only by Digital Equipment's HiNote Ultra series. At 4.1 pounds with a full-size keyboard and a 12.1-inch active-matrix display, the ThinkPad 560 is as close to perfection as anyone who lugs these things around day in and day out can imagine.

I don't care how muscled up you get, it's no fun dragging around 6 or 7 pounds of deadweight wherever you go. I've been advocating a 4-pound machine ever since NEC introduced its UltraLite Notebook Computer in 1988. In 1992 Dell made the 320SLi, an aggressive 3.6-pounder that should have been a trendsetter. Instead, some hardware problems along with its nonbacklit monochrome screen put the 320SLi into the museum, forgotten. Now that IBM has designed a workable form factor with a fast processor, lots of memory, and a gigabyte drive, I suspect that subnotebooks will become the road warrior's machine of choice and dominate sales.

Over the years because of basic inadequacies, many notebook vendors shied away from subnotebooks, claiming they were too small for the floppy disk everybody wanted. This notion persists even though the add-on floppy has always been available. Hitachi's new 5.3-pound Notebook C Series, introduced in May, has the floppy built right in and still qualifies as a subnotebook—quite a feat. Of course, now people expect the floppy and are looking for a CD-ROM.

Fast Track Whatever their complaints, all vendors seem to be on the fast track to make the lightest notebooks. People are finally buying them. Many writers like me were weaned on the Radio Shack Model 100, NEC Ultralite, Zenith 190, and every other machine that was a classic, right up to the Toshiba Portégé and the IBM Butterfly (the ThinkPad 701C).

It's nice to see that IBM, of all companies, never lost this vision. While company after company said

John C. Dvorak

I've always believed that **tennis racket technology** should be incorporated into **notebook design.**

that the market for subnotebooks was languishing, IBM was doing design after design. The ThinkPad 560 is IBM's third completely new attempt at bringing a subnotebook to market. Somebody in the division is a believer.

Each major iteration involved the keyboard. The first machine had a dinky keyboard. The Butterfly came out last year with a fold-out keyboard, which apparently wasn't easy to manufacture. And now this superthin unit—under an inch thick with the top up. I'm particularly impressed that the ThinkPad 560 uses carbon-fiber technology in the case to get the weight down. I've always believed that tennis racket technology should be incorporated into notebook design. Why not?

Ports of Call Credit for another factor that's helping to bring about the big shift to subnotebooks goes to Toshiba (which still has the most stunning screens) and the other vendors who promoted mini docking stations or so-called port replicators. Now that laptops have a large hard disk along with sound, big docking stations like Apple's are a useless concept.

With a port replicator you can hook a mouse, SCSI devices, a printer, a keyboard, and a large monitor to the laptop. And since the port replicator is not an expensive clunker, you can have one wherever you go—home, office, or the cabin! The subnotebook becomes the highly mobile, universal desktop machine. This is the model for 21st-century computing, once a few more details are addressed.

We're still waiting for built-in SCSI support. Backup systems, CD-ROM drives, and other devices need to connect effortlessly to these machines. PC Card SCSI support helps a little, but it would be better if it were standard, as it is with the Macintosh. Hitachi addressed networking in its new bigger notebooks by building an Ethernet port into the machine. This should be on all new subnotebooks. They should also be designed to drive at least a 1,280 by 1,024 display with full-color output. I'd like to see 1,600 by 1,200 on these units.

Once docked, these subnotebooks should be able to do anything a desktop unit can do. With the latest introductions, these machines have taken one step closer to perfection.

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The $6.6 Billion Wildcard

Not even the Net can resist suburbia's most banal and enduring legacy: the shopping mall.

It's a wonder, too, given how cheesy, vacant, and hugely unprofitable cybermalls have

been. But this may soon change. A few industry giants have begun to sense the big bucks

in online retail. Are we about to witness the malling of the Internet?

In June IBM announced plans to build World Avenue, a cybermall aimed at technology-shy retailers who want Big Blue's paternal hand to get them online. The same month Microsoft quietly acquired eShop, outbidding archrival Netscape in a deal that insiders say cost Bill Gates $30 to $50 million.

Of course, IBM's bumbling experience with Prodigy and Microsoft's day-late, dollar-short Microsoft Network don't exactly inspire confidence that either of these companies knows how to scare up retail dollars online. In fact, it's not clear that *anyone* knows how to turn a buck from cybermalls yet. MCI's mall, marketplaceMCI, turned tail this year and has since closed its doors. The Internet Shopping Network (owned by television's Home Shopping Network) has ditched the multiple-store, sell-anything approach; it now modestly hawks only PCs and other high-tech wares.

So why are IBM and Microsoft so upbeat about online malls? Internet shopping revenues are expected to skyrocket, from $518 million in 1996 to $6.6 billion in 2000. Three-quarters of Fortune 1000 companies plan to process online transactions by 1997. And at least 20 percent of all household expenditures will funnel through the Net within the decade. Meanwhile, the more than 600 malls on the Web continue to grow by roughly 50 to 100 a month.

Shop Till You Drop As with their suburban counterparts, the success of Web malls depends on big-draw department stores—anchors—to attract a swarm of customers. The obscure Wisconsin cheese shop, the haberdasher for hippies, and other lesser-known boutiques will pay big dollars to share links to these anchors,

Wendy Taylor and Marty Jerome

Why are IBM and Microsoft so upbeat about **cybermalls?** Revenues will nearly **double** every year.

hoping to siphon off their window shoppers. Cybermalls, like street malls, put little retailers on the map.

But the differences end there. Online retailers can't let you touch their goods before buying. There are no sales assistants to apply lipstick or to perfume your wrists. You can't try on clothes. There are no scary food courts. Street malls have gone into the entertainment business, offering expensive carnival rides for your vanity. It's why their total retail sales plateaued years ago.

Cybermalls reach an upscale clientele—one that is not looking for entertainment. They want hard information. And they want to buy on the spot. Cybermall managers have only begun to grasp this.

Open for Business In fact, most cybermalls have doggedly—foolishly—tried to mimic street malls, instead of leveraging the advantages of an electronic medium. Time Warner's DreamShop features a broad selection of upscale boutiques, including Williams-Sonoma and Eddie Bauer online. But you have to pick up the phone and dial an 800 number to order products. How clueless can you get?

Worse, the selection of browsable items is a limited version of what's available in retail shops. Because these companies aren't paying for exorbitant square footage on the Web, their selection of goods should be much, much larger than you can get in any store. Successful Web retailers like The Sharper Image have made their online fortunes by virtue of an auspiciously broad product line.

For their part, Web malls should provide sophisticated search engines. They should have centralized billing and credit-card encryption. There should be links to delivery services so customers can track their own orders. And the whole experience should be one-button easy. Also, cybermalls could reduce the $1 million price it costs to set up a full-fledged Web store by helping with the technical front end of setting up shop.

IBM's World Avenue and Microsoft's eShop have swallowed the Kool-Aid. Both companies promise to help retailers with these matters and more. Of course, both companies also plan to take as much as a 5 percent cut of total retail sales. In the short run, this is where the real money will be made.

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Has It Changed Your Life Yet?

New!

Cyrix 6x86-P200 vs. AMD-K5-PR100 Reference System

The New Pentium Killers?

As Cyrix and AMD will confirm, Intel no longer hosts the only party in town. But before you don your tux, it's worth heeding a little society gossip: Competing chips give good reason to defect if you run Windows 95, but for Windows NT, Intel-based PCs are still the place to be.

This is what our labs discovered in a sneak preview, side-by-side comparison of a reference PC from AMD powered by the company's spanking new 100MHz AMD-K5-PR100 chip, and the Cyrix 6x86-P200 PC with the new 150MHz 6x86 chip.

The performance of the CPUs was far from disappointing. They're both superb chips for their respective classes. But Intel's Pentium Pro delivers more brute performance, albeit at a higher price. In the short run, competing CPUs will exert the greatest pressure on Intel in terms of pricing, not performance.

Crossed Signals The only thing that's certain is that clock speed is about to become the most confusing and deceptive measure of power and performance the industry has seen. AMD's long-awaited K5 chip, for example, runs at 100MHz and is designed to compete with Intel's 100MHz P5. Yet the K5 is faster and more sophisticated than the P5.

The K5 lagged behind Dell's 133MHz Dimension XPS P133 by only 14 percent in Windows 95 benchmark applications. But it outpaced many 120MHz Pentium boxes by an equal amount. Like the Cyrix chip, the K5 is pin-compatible with Intel's P5, which means that system makers can pop it into any of their existing P5 motherboards (many of which, ironically, were designed by Intel).

The K5's only disappointment was in Windows NT performance, where it lagged behind the Dimension XPS P133 by 35 percent. The chip incorporates several Pentium Pro technologies, which should have given it a performance advantage over a vanilla P5 running Windows NT.

In fact, the K5's credentials are impeccable. Like the Pentium Pro, it converts x86 code into RISC-like operations for faster execution. It also features a superscalar design, out-of-order speculative execution, line-oriented branch prediction, a 16K instruction cache, and an 8K data cache.

So why the lackadaisical NT performance? AMD delayed the introduction of the chip on several occasions to optimize its performance for the x86 instruction set—the better to compete with Intel's Pentium. This may have undercut its performance in the unadulterated 32-bit world of Windows NT. In any case, the lesson to be learned is that the K5 platform is for Windows 95, not NT.

To quell any lingering doubts, a fully loaded K5 PC will probably cost under $2,000, perhaps less than $1,600. For those undaunted by quick obsolescence, this is a magnificent price for an entry-level system.

Hot on the Heels Meanwhile, in the wake of the splashy debut of its 100MHz 6x86 chip, Cyrix has introduced a 150MHz version, although the company calls the system the 6x86-P200 (see "Crossed Signals," above). This is because the chip is poised to compete with Intel's 200MHz CPU. But does it compete with the 200MHz Pentium or the 200MHz Pentium Pro?

Like the AMD chip, the Cyrix 6x86 is a hybrid of Pentium and Pentium Pro design features. Among these are a superscalar architecture and superpipelining with support for register renaming, speculative execution, and multibranch prediction.

Unique to the new 6x86 is a boost in bus bandwidth from 66MHz to 75MHz. This is no small thing. The 200MHz Pentium CPU performs only about 3 to 10 percent faster than a P166. Blame the 66MHz system bus, which runs at less than one-third the speed of the CPU. As a result, cache misses incur long delays and the system bus resembles a California freeway at rush hour.

With Cyrix's 75MHz bus, the 6x86-P200 outperforms a vanilla 200MHz P5 under Windows NT. In fact, the Cyrix system we tested ran neck-and-neck with a 200MHz Pentium Pro under Windows 95. But Windows NT was another matter. When running under

AMD's Alternative: Our test system from AMD included the first, long-awaited K5 chip running at 100MHz. It's designed to compete with Intel's entry-level 100MHz Pentium. Systems using the chip are due early next year, as is a 166MHz version of the CPU.

Cyrix Inside: The Cyrix 6x86-P200 is one of more than a dozen systems that will feature the company's blistering-fast 150MHz 6x86 CPU. Like the AMD chip, the Cyrix 6x86 is a hybrid of Pentium and Pentium Pro designs.

NT, Dell's Dimension XPS Pro200 outflanked Cyrix's system by a wide margin.

As with the AMD chip, you'll get the most from the Cyrix CPU under Windows 95. This is especially true if you consider the system's price fully loaded: $2,799. In other words,

it's priced at or below most 200MHz Pentium boxes—but you get far better performance.

Fast Forward Intel isn't exactly sitting on its hands as these low-cost competitors surge onto its P5 turf. The company has no plans for faster clock speeds on its standard Pentium

CPU. But it will enhance the chip with its multimedia extensions (MMXs), which will improve performance on audio, video, and image-processing tasks. The next Pentium CPU will also include a larger on-chip cache (16K for instructions and 16K for data) as well as an enhanced pipeline. Together these will boost the CPU's performance considerably. Even the 166MHz version of the P5 should perform faster than Intel's current 200MHz P5.

Meanwhile, AMD will roll out a 166MHz version of the K5 early next year. If it's priced as aggressively as the 100MHz version, AMD may very well steal the entry-level market away from Intel. Also, AMD has licensed Intel's MMX technology for its more advanced CPUs, which should be available in early 1997.

Cyrix is developing its own multimedia extensions, which will be fully compliant with Intel's. They'll appear on Cyrix's M2 CPU, due next year as well. Next-generation AMD and Cyrix processors may finally start chipping away at the Pentium Pro's performance advantage. Until then, Intel still owns the show for running Windows NT. **MARTY JEROME**

Performance: Pentium and Pentium Pro Challengers

Windows 95		Windows NT	
Dell Dimension XPS Pro200		Dell Dimension XPS Pro200	
Cyrix 6x86-P200		Cyrix 6x86-P200	
AMD-K5		AMD-K5	
Dell Dimension XPS P133		Dimension XPS P133	

NOTE: WINSTONE 32 IS A TEST THAT RUNS 15 OF THE MOST POPULAR 32-BIT WINDOWS BUSINESS APPLICATIONS

Performance Anxiety: Cyrix's new 150MHz 6x86 and AMD's 100MHz K5 CPU are putting the heat on Intel's Pentium—in price if not also in Windows 95 performance. Under Windows NT, however, Intel's 200MHz Pentium Pro retains a strong lead.

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MICROGRAFX

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IBM PC 350, Quantex QP5/200 SM-2, Xi Computer Xi P400 MTower DP

200MHz to the Max

PREVIEW Put your power where the apps are. Today the applications are still with Windows 95. And if you need all the power a Pentium P5 chip can muster, three new 200MHz systems from Xi, IBM, and Quantex are good places to begin.

End of the Line Intel's 200MHz CPU is not only the fastest P5, it also has the highest clock speed you'll ever see in that family of processors. Businesses have already begun the long-awaited migration to Windows NT—and, by corollary, to the Pentium Pro chip. Yet the lion's share of business apps coming out this year will run under Windows 95, and the 200MHz Pentium runs Windows 95 as fast as or faster than the Pentium Pro.

The latest 200MHz machines bear this up. The Xi P400 MTower DP is the fastest 200MHz system we've tested. No surprise here: The machine features a 2.2GB Wide SCSI-3 hard drive. It also supports two 200MHz Pentium processors. A $699 option, the extra chip pops easily into one of the system's two upgradable CPU sockets—a design aimed at high-end graphics users.

The rest of the system is outfitted accordingly. There's a Matrox MGA Millennium video card with 4MB of Window RAM for speedy true-color graphics, a 512K L2 cache, a six-speed SCSI CD-ROM drive, and a 28.8Kbps fax modem. With 32MB of EDO RAM (expandable to 512MB), it costs $3,699—cheaper than many 166MHz Pentiums.

Raging Trio: Three new 200MHz Pentium systems from (left to right) Quantex, IBM, and Xi each include 32MB of RAM, a massive hard disk, and a fast 64-bit graphics card. Intel's 200MHz CPU has the highest clock speed in the P5 family of processors.

The 200MHz Edge
Windows 95 Application Performance

Xi P400 MTower DP
IBM PC 350
Quantex QP5/200 SM-2
IBM PC 750 (166MHz)

NOTE: WINSTONE 32 IS A TEST THAT RUNS 15 OF THE MOST POPULAR 32-BIT WINDOWS BUSINESS APPLICATIONS

See How They Run: 200MHz Pentiums are still the fastest way to run Windows 95, although the performance gains over comparable 166MHz systems are often modest.

The same can't be said of IBM's PC 350. Though impressively fast, it will set you back $4,546. The same amount will get you a similarly configured Pentium Pro, which will carry you into the 32-bit future.

Full Fare Our IBM unit came with Quantum's 1.6GB EIDE Fireball hard drive, 32MB of RAM, a six-speed CD-ROM drive, a Matrox MGA Millennium video card, and an infrared port. It also has IBM's Wake-on-LAN, which lets network managers power up the system remotely for

maintenance. Oddly, there's no audio circuitry.

As dollar value goes, neither of these systems can beat the Quantex QP5/200 SM-2. Just look at what $3,049 buys you: 32MB of EDO RAM, a 512K L2 cache, a 3.2GB EIDE hard drive, an eight-speed EIDE CD-ROM drive, 16-bit audio, a 28.8Kbps fax modem, and a 17-inch monitor. When you need maximum Windows 95 performance on a minimum budget, Quantex's QP5/200 SM-2 delivers a solid value. **MARTY JEROME**

Guide to the Ratings: ★★★★★ *Excellent* ★★★★ *Good* ★★★ *Acceptable* ★★ *Poor* ★ *Unacceptable*

One-Click Desktop Digital Video

The QuickCam is back—this time in living color. Connectix brought digital imaging to the masses with its $99 billiard ball–size digital camera, which captures grayscale images and video from your desktop. Now Connectix has rolled out an updated version that packs full-scale color into the same round package for just $200. The Color QuickCam's image quality can't match that of more expensive digital cameras or video-capture cards, but if you need a one-stop, low-cost digital photography and video solution, it's perfect.

The Color QuickCam plugs into your keyboard and parallel ports simultaneously. Because most systems have only one parallel port, you'll want to invest in a good switch box if you're using a printer. Otherwise you'll be pulling a hardware switcheroo every time you want to use the Color QuickCam. If you're running Windows 95, check your system for port conflicts before installing the unit.

Say Cheese Once it's plugged in, the Color Quick-Cam couldn't be easier to use. Like the previous version, the color unit comes with two software utilities, QuickPict and QuickMovie. QuickPict captures still, color images at resolutions of 640 by 480 pixels at up to 24-bit color. Snapshot timing was a problem with the original QuickCam, so Connectix added a self-timer to this version. Now a countdown lets you prepare for your close-up photographs.

QuickMovie records digital video with an equally simple set of controls. The original QuickCam lacked a good compression system and captured video at low frame rates.

Live from Your PC: Still in the familiar round package, the Connectix Color QuickCam is a desktop digital camera and video-capture device in one. It includes a handful of tools for publishing color still images and video on the Internet.

Web Portraits: The Connectix Color QuickCam's self-timer feature gives you a few seconds to pose for perfect portrait shots. You can then edit your snapshots or broadcast the images via the Web at specified intervals.

Connectix solved that digital dilemma with its Video Digitally Enhanced Compression (VIDEC). This method lets users capture up to 24 fps depending on image size. However, if a non-QuickCam user wants to view a VIDEC-compressed movie, the file has to be decompressed before it's sent, or the user must have the decompressor on his or her computer (it's available for download on the Connectix Web site at www.connectix.com).

While the image and video tools have improved they could still use some refinement. The size and resolution of the video you can capture is limited. Images are sharpest when displayed in the standard 1-inch-by-1-inch window. You can enlarge the capture window but images become grainy. Instead of using a camera-based zoom lens, the Color QuickCam's zoom feature is software based, meaning it has only a few ratios to choose from.

See You Online The Color QuickCam's Web and conferencing features are big strengths, making the camera compatible with several video-conferencing programs, including Connectix's VideoPhone software and White Pine's Enhanced CU-SeeMe. If you want to broadcast pictures from a Web site, QuickPict includes an improved Auto Capture feature that takes pictures at specified intervals. The Color QuickCam also comes with QuickCards Limited, a multimedia greeting-card program, as well as an America Online add-on that lets you easily e-mail images to other AOL members.

The Color QuickCam isn't the ultimate in digital cameras, nor is it a production-quality digital video device. But if you need a little of both, the Color QuickCam gives you an eyeful of color digital power at a terrific price. **JULIE POLITO**

PHOTOGRAPH BY ARNOLD TOBLER

Graphics Go to New Depths

PREVIEW

Live-action software in three dimensions—particularly games and multimedia titles—is no longer the stuff of technology demonstrations and super-computer applications. It's here, and software is only part of the equation. New video cards are pushing pixels to new heights—and depths.

Two of the first new cards out of the block are the Diamond Multimedia Stealth 3D 2000 and the Number Nine Imagine 128 Series 2. The Stealth 3D 2000 is a 3-D iteration of the company's popular Stealth 64 card, while the Imagine 128 Series 2 is the second edition of the sophisticated 128-bit Imagine 128. Both remain graphics accelerators at the core, but now they have 3-D features that bring out the best in still and animated graphics.

High Speed, Low Cost
The Stealth 3D 2000 is a 64-bit card that possesses two of the qualities we like best in graphics cards: speed and affordability (it costs $199). That's nothing new for Diamond's line of accelerators, but the Stealth 3D 2000 uses S3's new Virge accelerator chip. This chip includes a 3-D rendering engine that uses texture mapping, filtering, blending, and Z-buffering (to speed the removal of hidden surfaces for more 3-D-like objects). The result? You get more life out of 3-D games and animations.

The Stealth's PCI-bus board comes with several Stealth 3D-accelerated games. Diamond also says it will supply its customers with Microsoft's Direct3D drivers when they become available later this year. Drivers for Indeo, Cinepak,

Feels Real: Graphics cards from Diamond (left) and Number Nine include onboard 3-D acceleration. The Stealth 3D 2000 is a gamer's dream; the Imagine 128 Series 2 is ideal for video and high-end graphics.

Speedy 3-D Cards
Windows 95 Performance

Number Nine Imagine 128 Series 2

Diamond Stealth 3D 2000

NOTE: GRAPHICS WINMARK IS A TEST THAT MEASURES VIDEO PERFORMANCE UNDER WINDOWS 95.

Think Fast: Thanks to its 128-bit graphics chip, the Imagine 128 Series 2 has an edge over the Stealth 3D 2000 when running standard Windows 95 applications.

and software MPEG are already in the box.

It's a board that quite literally glows with your needs. Diamond will soon offer a hardware MPEG daughtercard for $129 that snaps onto the 2000 card. There's also a TV tuner option on the way for the same price. And its 2MB of EDO dynamic RAM (DRAM) can be upgraded to 4MB. The card's standard configuration supports resolutions of up to 1,600 by 1,200 pixels in 256 colors, or 800 by 600 pixels in 16.7 million colors (true color).

Video Star Like its predecessor, the Imagine 128 Series 2 specializes in processing large numbers of pixels, making it a

better choice for video—especially at high resolutions—than 64-bit cards like the Stealth 3D 2000. This 128-bit card can do true color even at its maximum resolution of 1,600 by 1,200 pixels. It's faster than Diamond's card and accelerates motion-video playback as well as or better than any graphics card out there.

You pay a price for top-notch performance—$699 in this case. But if you're looking for bargains, Number Nine offers the 9FX Reality 332 card, which is similar to the Stealth 3D 2000 (it uses the same S3 Virge chip) and costs less than $200. A more affordable DRAM version of the

Imagine 128 Series 2 should be available this fall.

The Series 2 card, using Number Nine's own 128-bit accelerator, also has many 3-D rendering features built in for better graphics and animation. Like Diamond, Number Nine will make Direct3D drivers available when Microsoft finalizes the technology.

Of course, there are plenty of uses for 3-D beyond games—computer-aided design and 3-D modeling come to mind—and the Imagine 128 Series 2 card has the edge there. But if games are driving your bus, the affordable Stealth 3D 2000 card is a better bet. **CHRIS O'MALLEY**

Guide to the Ratings: ★★★★★ *Excellent* ★★★★ *Good* ★★★ *Acceptable* ★★ *Poor* ★ *Unacceptable*

PHOTOGRAPH BY ARNOLD TIOSEJO

Multimedia, Loud and Clear

NEC is making some noise with its 17-inch MultiSync M700 monitor. This new multimedia eye-opener adds an improved tube, video enhancements, built-in speakers, and an integrated microphone—all for under $900.

The M700 presents a sharp picture with vivid color, thanks to its 0.25mm mask pitch and NEC's new CromaClear tube. The monitor has a 15.6-inch viewable screen and supports resolutions of up to 1,280 by 1,024 pixels. But like all 17-inch monitors, it's best suited for 1,024 by 768 pixels.

The monitor's onscreen controls let you adjust the image and sound quality, and it has sound modes for music, video, games, and everyday work. One thing the M700 lacks is an external volume knob for quick sound adjustments.

The integrated 2-watt speakers mean there's a smaller footprint on your desktop. But you'll sacrifice sound quality for space—the speakers are slightly tinny and sound is distorted at high volumes.

A high-quality 17-inch monitor paired with powerful speakers costs only about $100 more than the M700. Until speaker quality improves, monitors with integrated speakers will remain the exception, not the rule. Even so, the NEC MultiSync M700 is the best multimedia monitor we've seen for the price. **JULIE POLITO**

See Me, Hear Me: NEC's $899 speaker-equipped MultiSync M700 is a complete multimedia monitor.

Compact Devices TopSpin CD-ROM Server

Share CDs on the Net

It's no secret that CD-ROMs are the best way to bring multiple megabytes of information and applications to the desktop. But buying all 500 employees their own CD-ROM drive? Talk about draining your budget. One alternative is to get a networked CD-ROM drive. It's cheaper, easier to manage, and gives everyone on the network easy access to CDs. Compact Devices' $795 TopSpin CD-ROM Server is a great way to connect up to seven CD-ROM drives to your Ethernet LAN.

We configured the TopSpin to act as a NetWare server, but it can also be configured as a Web

server or a Network File System server for Unix. The TopSpin Server doesn't require you to bring down an existing file server, purchase a dedicated server, or provide client workstations with special drivers. With NetWare you can easily map the TopSpin's CD-ROM volumes to your desktop. And because the TopSpin can function as a Web server, you can manage and access it through any HTML browser such as Netscape Navigator.

Network bandwidth is always a concern, but because TopSpin doesn't tax existing file-server resources we didn't see an effect on network performance. If you've already

invested in CD-ROM drives and need an inexpensive, easy way to daisy-chain up to seven of them for your workgroup, TopSpin CD-ROM Server is a top choice. **RICH SCHWERIN**

CD Share: Give everyone on the network—or your Web site—access to CDs with TopSpin CD-ROM Server.

Guide to the Ratings: ⭐⭐⭐⭐⭐ *Excellent* ⭐⭐⭐⭐ *Good* ⭐⭐⭐ *Acceptable* ⭐⭐ *Poor* ⭐ *Unacceptable*

PHOTOGRAPHY BY ARNOLD TIOSEJO

The Web without the wait.

Picture-perfect Presentations

When it comes to business presentations, looks are everything. To dazzle clients with sight and sound you need the right hardware. Multimedia projectors don't match the color and video of standard monitors. Use a desktop monitor, though, and your audience will hover around the screen as if it were a campfire in 0-degree weather. The ViewSonic 29GA monitor is a great new alternative. It's not a portable solution, but its sharp picture and audio will make your next in-house presentation shine.

With a black bezel and 27-inch viewable screen, the 29GA looks more like a TV than a monitor. It supports resolutions of up to 1,280 by 1,024 pixels. The 5-watt speakers built into each side of the bezel

Live Large: The ViewSonic 29GA 27-inch monitor is perfect for in-house multimedia presentations.

produce good sound with little distortion. But they're not very loud—with a large audience you'll want to supplement them with more powerful speakers. The 29GA has video outlets for RCA and S-video sources, plus

audio jacks. Also onboard are controls for volume and screen adjustments, all of which are duplicated on the straightforward remote control.

The screen size and speaker strength of the 29GA are best

suited for smaller audiences. And because lugging a 29-inch monitor through an airport isn't realistic, an LCD projector is still a better, albeit pricey, alternative for traveling presentations. JULIE POLITO

Cardinal Technologies MVP288XS

Small-Office Smart Phone

In a small or home office, a modem and phone can be as essential as electricity. The Cardinal MVP288XS packs a V.34 data-fax modem, a full-duplex speakerphone, Radish's VoiceView technology, caller-identification support, and additional telephony support into one compact package.

With a smart nod to usability, the MVP288XS includes Cardinal's Modem Commander, an icon-based setup and configuration center à la Windows 95's Control Panel.

The MVP288XS also has productivity-enhancing software like Clearwave's IntelLect Lite, an automated voice-mail and phone-management app.

Speak Up: The new Cardinal MVP288XS handles all your voice and data communications.

With the included caller-identification support, IntelLect Lite acts like a sophisticated voice-mail system with priority call exceptions. The MVP also comes with Global Village Communications' FaxWorks, a basic fax-management tool.

Although FaxWorks is adequate, serious fax users will want to upgrade to Delrina's WinFax Pro.

The modem supports VoiceView, a technology that lets you switch between voice and data communications. For SOHO offices on a budget, it's like having two phone lines in one.

At only $299 the MVP offers more features than its higher-priced competitors. If your telephone and modem are essential to your business, the MVP will be a nice addition to your arsenal. RICH SCHWERIN

Guide to the Ratings: ★★★★★ *Excellent* ★★★★ *Good* ★★★ *Acceptable* ★★ *Poor* ★ *Unacceptable*

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To our way of thinking, Intelligent Manageability wouldn't be all that intelligent if it cost a small fortune, so we've worked hard to make the new Deskpro line not only affordable to purchase, but affordable to operate. And that's over the life cycle of your desktops.

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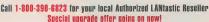
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Has It Changed Your Life Yet?

Lotus Components Starter Pack

Extend the Power of Lotus Notes

PREVIEW
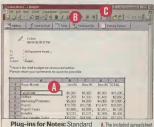
Lotus Notes is under siege and the Internet is the battleground. Web juggernauts like Netscape and Microsoft claim that their Internet-standard applications can do everything Notes can, at a small fraction of the cost and hassle. Lotus has responded with a frenzy of extensions for Notes 4.0, which deliver Web browsing features and highly secure Internet connections. Lotus's next line of attack lies in Lotus Components—Notes plug-ins that dramatically extend the types of data that can reside in Notes documents.

Active Applets There's no limit to the number of components that can be added to Notes, and the six in the Lotus Components Starter Pack are a demonstration of what Lotus hopes will become a long list including third-party add-ins. The Starter Pack will be free or cost no more than $49 per license.

The add-on integrates well with Notes. Click on the Components drop-down menu, choose an item from the list, and a data object like a spreadsheet appears inside the document window. Although the embedded data looks like part of the Notes document, a click within the object's borders activates the component and subtly alters Notes' toolbars.

Jump Start We used the Starter Pack's six components to create charts, drawings, spreadsheets, and project schedules. There's a component that embeds a file viewer, and another that adds comments, sticky-note style, to

Plug-ins for Notes: Standard Notes documents handle only text and file attachments. Lotus Components give you the tools to edit, create, and share spreadsheets, charts, and project schedules.

Dynamic Data: Components are ActiveX controls, which means they can be used in any OLE container application, although they completely integrate only with Lotus Notes.

A. The included spreadsheet component works much like Lotus 1-2-3.

B. Several tools appear when you click on the spreadsheet component.

C. Click here to see what components are available.

Notes messages. Because these components are ActiveX controls that rely on OLE embedding (as opposed to linking), a component and all its data are stored as part of the document it lives in. Shifting between the main Notes document and an embedded object was smooth and quick in our tests.

The pack also includes a template builder, which lets developers create ready-made Notes documents. You could create a spreadsheet-based budget template, for example.

Any Notes client on any platform (including Macintosh, OS/2, and Unix) can view a Component object. Creating or editing objects, though, is a Windows-only activity, requiring the 32-bit Windows 95 or Windows NT client for Notes Release 4.1 or later.

We were impressed by how smoothly these components worked, but there are a few costs worth noting. Embedding a data object takes a healthy chunk of storage (at least 40K per document) because the entire applet has to be stored in the document.

Squeezing respectable performance out of the Notes and Components combination requires a lot of horsepower—on both the client and server ends. Notes' admirable cross-platform support takes a hit here, too, because Macintosh, OS/2, and Unix clients can't use Components except as passive viewers. Most telling of all, these extensions do nothing to enhance communications between Notes and Internet users, a fact that Netscape and Microsoft will be sure to remind you of. **ED BOTT**

Guide to the Ratings: ★★★★★ *Excellent* ★★★★ *Good* ★★★ *Acceptable* ★★ *Poor* ★ *Unacceptable*

Draw, Paint, and Publish

PREVIEW

Remember simple drawing programs? You may soon have only those memories, since many drawing programs are turning into multifaceted graphics powerhouses that include professional illustration, image-editing, and design tools. Deneba Canvas 5 is the latest to make this transition.

It's been a slow metamorphosis for Canvas—painfully slow for faithful Canvas users. Deneba first began publicly showing and talking about Canvas 5 more than a year ago but only recently began showing the product (for both Windows and Macintosh platforms). And anyone hoping Deneba would stay close to its roots and simply refine the already fine drawing tools will likely be disappointed—or overwhelmed. But if you're a more-the-merrier type when it comes to features, there's plenty to be merry about here.

Picture This Canvas 5 builds on its solid foundation of drawing tools, which have long been admired for their technical precision rather than their creative flair, and adds key components in several areas: image editing, typographic effects, document design, and presentation tools.

Canvas is now more open to the graphics world around it, too: You can import or export most graphics file types, including Photoshop, FreeHand, EPS, GIF, and JPEG. You can use Photoshop-compatible plug-in filters, including Kai's Power Tools. And Canvas converts raster images to vector graphics with autotracing. You can also scan images directly into Canvas 5 with any TWAIN-compatible device.

Stretch Your Imagination: In early versions, Canvas was just a precision drawing program, but Canvas 5 adds image-editing, page-layout, presentation, and design tools. The result is a complete graphics toolkit.

Digital Palette: Create your masterpieces from scratch using Canvas 5's free-form illustration tools, or edit objects from the clip-art library.

Noticeably missing—and originally promised for this edition—are special features for Web page design. There are no HTML import or export filters, much less any Web design extras.

The image-editing tools in Canvas 5, including those for painting, provide all the expected controls and effects. And there are extras too, such as pressure-sensitive brushes, special-effect filters, and color curves. Canvas's typographic and document design tools shine even brighter, with an appealing combination of creativity (for example, typing directly on shapes and curves) and control (font sizes from 1 to 32,768 points in 0.01-point increments). There are also hundreds of document templates and more than 2,000 each of TrueType and PostScript Type 1 fonts to help you get started—and finished—quickly.

Quick Art There is a similarly deep reservoir of drawing tools at your disposal. The package comes with more than 20,000 pieces of object-based clip art (including many architectural and engineering items), though you can create your own if you want. Canvas 5 has as robust and exacting a set of drawing and design tools as you'll find in any professional graphics package.

Canvas 5 does a good job of integrating its many new features into an approachable product. Elements like its floating toolbox and tabbed palettes give Canvas 5 flexibility and a pleasant ease of use. Although this is hardly a beginner's tool—there are no wizards, for example—it's not unduly complex.

If you need more basic or specialized drawing tools, you may want to look at programs such as CorelDraw or Visio. And there's probably nothing so compelling here that you'd want to switch from FreeHand or Illustrator. But Canvas 5 is a big step forward for current Canvas users and an approachable one-stop solution for anyone who creates professional graphics. **CHRIS O'MALLEY**

Guide to the Ratings: ★★★★★ *Excellent* ★★★★ *Good* ★★★ *Acceptable* ★★ *Poor* ★ *Unacceptable*

Master Your Network

Sometimes you have to act like a superhero to be a good network administrator. You have to be vigilant, quick to respond, and wield extraordinary powers to protect users from disaster. Helping you to become the system savior you've always wanted to be, Symantec has released Norton Administrator Suite—Essential Edition, a collection of network management tools with more nifty gadgets than on Batman's utility belt.

From the console application, a network administrator can analyze and manage an entire LAN. Want to know what kind of hardware and software your company uses? Need to install a new e-mail package on 20 machines? The click of a button is all it takes. Norton AntiVirus and license-metering components are also included.

Norton Administrator Suite comes with client software for

Command Central: Symantec Norton Administrator Suite provides an extensive collection of tools for keeping NT and NetWare networks running smoothly.

Windows, DOS, OS/2, and Macintosh platforms. Unfortunately, Macintosh support isn't fully integrated and requires a separate console application. And although the suite supports several types of servers, it is definitely designed for NetWare, a limitation that

could annoy Windows NT Server administrators.

Every network administrator should have a collection of tools like this. However, Norton Administrator Suite has so many tools that novice administrators might be overwhelmed. A more streamlined

interface and an implementation guide would help. Also, your business manager might balk at the price ($635 for ten users). But overall, Norton Administrator Suite is a powerful set of tools to keep your network running at full steam.   **J. W. DAVIS**

Lotus Organizer 97

In Touch and On Time

PREVIEW

Pitch your Post-it notes and toss your Rolodex. The Windows 95 version of Lotus's friendly information manager, Organizer 97, may be just the excuse you need to finally move from paper to the PC for managing your address book, schedules, and to-do lists.

Organizer's familiar customizable datebook format is still in place, with several improvements. The calendar section has easy-to-read daily, weekly, monthly, and yearly views that are fully editable. The notepad section supports

Personal Assistant: Lotus Organizer 97 adds a networked address book and scheduling.

rich text format, so you can change font size, typeface, and color. You can also share schedules and address books across a network.

Meetings or addresses can be linked to documents from

outside applications. And you can drag and drop most elements on a page into other parts of Organizer.

The little touches that distinguish Organizer are still around in the new version. It still lets you organize the anniversary section by Zodiac sign, for example, and the trash can bursts into flames when you delete something. Do you need these features? No, but they help make Organizer 97 what it is—a fun place to park your personal information.   **JULIE POLITO**

Guide to the Ratings: ★★★★★ *Excellent*   ★★★★ *Good*   ★★★ *Acceptable*   ★★ *Poor*   ★ *Unacceptable*

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modular FDD (std.), second battery (opt.)
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Echos P100E

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In 1965 we invented the world's first desktop computer. And over the last 30 years our continued dedication

innovation has grown our company into one of Europe's top PC manufacturers. Now we're introducing in
the U.S. the award-winning line of powerful and truly affordable multimedia notebooks. The Echo
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So you're a tad skeptical. We understand. After all, the idea of team computing with other office suite software has been somewhat of a fantasy.

Now there's Lotus SmartSuite.®

Exhibit A: TeamReview.™ This powerful feature lets you easily solicit feedback by establishing "who" receives a document for review, "what" level of editing rights they'll receive (comment only, read only or edit only) and "how" the document will be distributed (via floppy disk, e-mail or Lotus Notes®).

Co-workers can then edit using review and comment tools like a highlighter pen, revision marking or electronic comment notes.

Exhibit B: TeamConsolidate.™ Here the author can review everyone's edits and decide which comments to incorporate. And then, with a click of a button, collapse accepted comments into one revised document. (This might be a good time to start warming up those pipes of yours, because you'll be singing the praises of SmartSuite just a few paragraphs from now.)

With SmartSuite's electronic team features,

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everyday mundane tasks disappear, leaving more time for you to do what you do best. It's also been optimized for Windows® 95 to deliver greater functionality and productivity.

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Versions of SmartSuite are available for Windows 95, Windows 3.1 and OS/2, and SmartSuite is now included with Aptiva,® ThinkPad® and most IBM® PCs, as well as select Acer,® AST® and Epson® PCs.

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FrontPage 1.1, HotDog Pro 2.0, HotMetal Pro 3.0, Navigator Gold 3.0

Make Your Mark on the Web

SPREAD PREVIEW

To do business in the '90s you need a Web site. But how do you make your mark on the Web without spending a fortune? Four new Web publishing packages—Microsoft FrontPage 1.1, Anawave HotDog Professional 2.0, SoftQuad HotMetal Pro 3.0, and Netscape Navigator Gold 3.0—provide a range of options for you or your company to make the right Internet impression.

Microsoft FrontPage 1.1 is the best all-around Web site creation, publishing, and management tool, and includes basic Web server software. Netscape's Navigator Gold 3.0 is a good choice if you don't require Web server software. For overall HTML code quality, SoftQuad HotMetal Pro 3.0 is top-notch. And budget-minded Web creators should choose the least expensive of the bunch: Anawave's $50 HotDog Pro 2.0.

Style Guide Early Web tools were often more trouble than they were worth since they didn't always incorporate the late-breaking HTML 2.0 and 3.0 tags and proprietary tags used in browsers from Netscape, Microsoft, and other vendors. That's changed, however—this lineup of products supports HTML 2.0 and 3.0 tags, as well as those of Netscape browsers. In addition, all but Navigator Gold 3.0 support specific tags for Microsoft's Internet Explorer browser. SoftQuad even provides tag-support updates for HotMetal Pro 3.0 on its Web site, and HotDog

Vanity Press: Designing a Web site is easier than you'd expect with page editors like FrontPage 1.1 (above), HotDog Pro 2.0, HotMetal Pro 3.0, and Navigator Gold 3.0.

Would you trust this man with your Computer your business, an

A. FrontPage's toolbar gives you quick access to **Web creation features.**

B. The **Explorer** displays your Web site at a glance.

C. WebBots let you add functions like text searching.

Back to Basics: Netscape Navigator Gold 3.0 uses the familiar Netscape browser interface to let you create and edit pages without any HTML knowledge.

Pro will include this feature in version 2.5.

All four of these tools cut down or even eliminate the time you spend typing in HTML tags like <img src= "comp2sm.gif"> by letting you choose page-formatting controls, hypertext links, graphics, and other functions from menus and dialog boxes. In fact, only HotDog Pro 2.0 and Navigator Gold 3.0 let you edit the body of your HTML tags directly, though Navigator does this by simply loading

your HTML document into Windows' Notepad.

FrontPage 1.1 and Navigator Gold 3.0 take a graphical, desktop publishing approach, letting you directly edit the document as it will appear in a browser. However, we found instances where the graphical display in Navigator Gold's Netscape Editor didn't match what appeared in the Netscape browser. This was not a problem in FrontPage.

HotDog Pro, a favorite with HTML programmers,

Guide to the Ratings: ★★★★★ *Excellent* ★★★★ *Good* ★★★ *Acceptable* ★★ *Poor* ★ *Unacceptable*

Colorful Tags: Anawave HotDog Pro 2.0 highlights HTML tags in different colors so you can quickly spot and edit them.

Hot Tags: SoftQuad HotMetal Pro 3.0 depicts HTML tags as icons appearing in a semigraphical Web page display.

and also a Link View that graphically displays links between pages. In addition, the FrontPage Explorer automatically renames and moves files and verifies links, and helps manage contributions.

The Publish feature of Hot-Dog Pro 2.0 and HotMetal Pro 3.0 prepares your HTML pages for placement on the Web, automatically altering some text and features to conform to the ISP's server. The Publish feature of Navigator Gold 3.0 gives you options to maintain file links and copy image files when moving documents to the server.

Top Choice All four of these Web authoring tools will make your life easier, depending on how you like to work. Microsoft's FrontPage 1.1 is the best comprehensive tool for Web site creation and publishing. Choose Netscape's Navigator Gold 3.0 if you don't need Web server software. For clean HTML code, SoftQuad's HotMetal Pro 3.0 is the way to go. And if you're on a budget and looking for a real time-saver, Anawave's HotDog Professional 2.0 is your best bet. **BOB WEIBEL**

provides some graphical features with its Real-time Output Viewer, a built-in browser window that displays the results of your tagging—even letting you link to other pages.

HotMetal Pro 3.0 takes a quasigraphical approach, letting you edit in a view that displays the HTML markup as easy-to-read icons. You're shown an approximation of the resulting content as it will appear in a browser, a nice feature for HTML programmers.

HotDog Pro displays tags in color, making them somewhat easier to check, though not as easy to spot as Hot-Metal's tag icons. While it has the handiest dialog box for inserting tables, HotDog lacks the means to edit an existing table. In contrast, the other programs provide a dialog box for altering tables you've already inserted—letting you add rows or columns, for example—or for changing a table's color.

Web Code Cops Most Web browsers forgive a lot of improperly structured HTML tagging, but improper tagging can still get you into trouble. Since graphical editors essentially do the tagging for you, you end up with better code. HotMetal Pro 3.0 is a genuine "code cop" in this regard,

with strict rule-checking and validation features that prevent you from improperly placing your tags.

HotMetal Pro even checks code from HTML documents you import from other sources, forcing you to correct the tagging in a simple text-editing mode. HotMetal Pro 3.0's first release, though, is all whip and little help. The HotMetal HTML interpreter points out the location of tagging errors just fine, but in every case we encountered, the accompanying error message had nothing to do with the actual error, and was usually misleading. You'll be stuck if you're not an HTML ace.

Intranet Smarts Front-Page 1.1 stands out from the others as a complete Web site development tool. It's the only package to include Web server software sufficient for establishing an in-house Web site, or intranet, on a LAN. If you're placing a Web site on the server of an Internet service provider (ISP), you may still need to install the server software. That's because in addition to the built-in graphical editor, FrontPage includes wizard-like agents called WebBots that allow nonprogrammers to add features such as a full-text search engine,

threaded discussion groups, and automatic end-user registrations to sites.

These WebBot features work only if your ISP has installed the server extensions. If it hasn't, you'll need to convince the ISP to download the appropriate extension from Microsoft's Web site.

Site Management Posting completed Web pages to a Web server is the other half of the battle, and all of these tools offer some help. FrontPage 1.1 goes the farthest, with the FrontPage Explorer, which gives you a Windows 95 Explorer–style Outline View of your Web site's file structure

Guide to the Ratings: ★★★★★ *Excellent* ★★★★ *Good* ★★★ *Acceptable* ★★ *Poor* ★ *Unacceptable*

Get Your Web Site Moving

PREVIEW

Do those cool Java and Macromedia Shockwave animations on other people's sites give you a case of Web envy? Unless you have a full-time Web staff, making those kinds of eye-popping effects isn't practical. If you're set on creating animations but don't want to learn a new programming language, two new applications—FutureWave CelAnimator and Gold Disk Astound 2.1—let you make scriptless, simple animation that anyone can view with a free Netscape Navigator plug-in.

It takes a while to master, but CelAnimator lets you create any interactive animation you can muster. And since it's vector-based, file sizes are small—a fully functioning animation can be as small as 2K. Astound, on the other hand, is primarily a presentation package. Although it doesn't have as much interactive animation power as CelAnimator, it's exceptionally easy to use, and ideal for simple object animations and presentations.

Tiny Toons From the start, CelAnimator gives you more freedom of design than Astound—almost too much freedom, in fact. Although it includes some clip art, you're basically starting from scratch, drawing your animations one step at a time. The good news is that the free-form drawing tools are easy to use (they're identical to the ones in FutureWave's SmartSketch).

CelAnimator's bare-bones animation tutorial leaves much to trial and error. If you've worked with animation software before, you'll quickly figure out the familiar time-line metaphor. If not, you may get lost. But once you get the hang

Look at This: How do you easily add eye-catching animations to your Web site? CelAnimator (above) and Astound let you create simple presentations that anyone can view with a free Netscape Navigator plug-in.

A. Create animations from scratch with the **free-form drawing tools.**

B. CelAnimator lets you map **animation speed.**

C. Don't want to draw? Import existing **graphic images** into any animation.

Presentation Power: Astound's Web Player plug-in and publishing tools are a natural extension of Gold Disk's multimedia package.

of the animation tools, you'll be impressed with what you can do. You can make your animations completely interactive. For example, you can create a button that highlights or changes to another color when it's pressed. The only downside to CelAnimator is that it doesn't support sound.

Portable Presentations Astound 2.1 takes its simple presentation features a step further with Gold Disk's free Navigator plug-in. You can upload Astound slides—complete with animations and text

effects—onto any Web site. You can also create interactive buttons that link to other sites or to other "slides" on the same site. Astound's files are larger than CelAnimator files, starting at around 40K. They do, however, support MIDI sound. Astound also has several tutorials and dialog boxes to walk you through the animation process.

If you want to put straightforward business information on the Web with a little animation pizzazz, Astound is a simple, effective option. For

sprucing up your existing Web page with fully interactive animation, CelAnimator is the better choice. Unfortunately, both applications require separate plug-ins to view the graphics. Most browsers are already heavy with plug-ins, and if you use either of these products you're asking people to install yet one more. But there's a big payoff—cool animations that are smaller than Shockwave files and don't involve complex Java programming. Who says cutting-edge Web animation is only for pros? **JULIE POLITO**

Guide to the Ratings: ★★★★★ Excellent ★★★★ Good ★★★ Acceptable ★★ Poor ★ Unacceptable

Put Your Database in Cyberspace

You don't have to hire an expensive consultant to convert your database to a Web-friendly format. Two novel new Web-publishing tools, Level\5 Quest 2 and Corel Web.Data, offer easy ways to publish databases on the Web. With either product, just about any database you keep—from a company phone list to an inventory of machine parts—can be attractively published either on the Internet or on a corporate intranet.

Both products link your Web server to any standard database via Microsoft's Open Database Connectivity 2.0 (ODBC) interface. The database can be in Excel, Oracle, Sybase, dBASE, Paradox, or any ODBC-compliant data source. At $5,490 ($1,144 through September 30), Level\5 Quest 2 is better suited for sites that require live links between back-end data and the front-end Web browser (which means changes to your data are instantly reflected on the Web, and your data is searchable). If you're on a budget and don't need a live link between your data and the Web, Corel's $99 Web.Data is the better choice.

Live Linking Level\5 Quest includes two components, Quest Desktop and Quest Server. First you build your database or import your ODBC-compliant data using Quest Desktop on any Windows 3.1, 95, or NT PC. Then you copy the project to the Windows NT– or Unix-based server where your Quest Server and Web server software reside. Quest Server data can be accessed by any Web browser that supports tables, including Netscape Navigator 3.0 and Microsoft Internet Explorer 3.0. And because

Share It: Want to publish all or part of your company's database on the Internet or on a corporate intranet? Level\5 Quest 2 (above) lets you post live, searchable databases on the Web.

Step by Step: Corel Web.Data steps you through the entire process of converting your database to HTML.

there's a live link between the data and the Web, users can easily query fresh information.

Level\5 Quest lets you choose the query terms to which each data cell will respond, and the Connection wizard steps you through the process. Surfers can then search for specific records based on cell-level criteria. For example, a user could search for all sales target cities in California with a population of at least 300,000 and an average household income of $40,000. Level\5 Quest then assembles matching query results on the fly.

Corel Web.Data is a more limited yet valuable way to

publish a database on the Internet. The $99 price reflects the fact that Web.Data publishes tables as static HTML content without live links between the database and the Web page. It's best suited to information that doesn't change often because the databases it converts to HTML are not searchable. If you're comfortable building Common Gateway Interface scripts, you can enable a live database link but it's not part of the product.

Push-button Publishing With Web.Data, it takes only a few clicks to format your data for the Web. First select your ODBC-compliant data

source and specify whether the database should be published as a table or in a custom format. Then select the records or fields you want to publish and add any descriptive text, graphics, or HTML attributes. Finally, with a click of the Process button, Web.Data converts your data to HTML format.

If you're looking for a quick and low-cost way to publish static databases on the Web or a company's intranet, Corel's Web.Data is a great choice. For publishing live, searchable Web and intranet databases, Level\5 Quest 2 offers more power, but for a price. **MIKE HOGAN**

Guide to the Ratings: ★★★★★ *Excellent* ★★★★ *Good* ★★★ *Acceptable* ★★ *Poor* ★ *Unacceptable*

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Insights to Your Web Site

Once your Web site grows past a few pages, trying to keep track of every image, directory, and link is a dizzying experience. Making sure this page links to that one, graphics are in the right directories, and links to other sites are current is tedious business. InContext WebAnalyzer 1.1 takes care of these mundane tasks by automatically checking the validity of your Web site and alerting you to things like broken links or redundant files. It quickly presents this information in an easily interpreted, HTML-based report, saving you hours of work. Not bad for $80.

Instant Analysis WebAnalyzer scans any Web site as long as you're connected to the Internet. Enter the root URL (or master home page) address of the site you wish to analyze and wait while WebAnalyzer builds a concentric map of the site. At the center is the root URL, which is then encircled by other pages' links to the master page, and so on.

This concentric map is called the Wavefront view, one of three WebAnalyzer views. It contains clear icons for nine site elements: documents, images, application links, mail-to links, audio files, video files, FTP, Gopher, and unknown content (which covers any element that requires a plug-in, like a Macromedia Shockwave file).

At a quick glance it's easy to see which site elements are broken or missing, since they're marked with a barred red circle. The Link view displays all the inward and outward links for any selected site element. For example, clicking on a broken audio file icon will display all of the links to and from this file, which makes

WebAnalyzer 1.1

★★★★

Verdict: A reliable, affordable way to keep your Web site and links current.

Pros: Solid, simple site analysis; comprehensive HTML-based reporting.

Cons: Incompatible with certain file types including Java and Shockwave; identifies many new Web technologies (especially Netscape Navigator plug-ins) as unknown.

Features: Three different Web site views—Wavefront, Link, and File; 32-bit Windows 95/Windows NT support; independent of Web browser and server; exportable reports; offline browsing and Web site retrieval; free 90-day technical support.

Competition: NetCarta WebMapper also offers site and content management, but costs $170 more than WebAnalyzer.

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www.incontext.com
Reader Service No. 717

Find the Missing Link: InContext WebAnalyzer 1.1 saves you hours of mundane upkeep by automatically finding broken links on your ever-changing Web site.

A. See all the **inbound** and **outbound** links from any particular site element.

B. Build **graphical views** of any Web site, with different icons for nine site elements.

C. The File view lists all **site elements** in detail.

Inside Information: WebAnalyzer produces a detailed report in HTML that outlines site statistics, broken links, duplicate files, and other information to ease Web management.

identifying and fixing broken links much easier.

Below the Wavefront and Link views is the File view, a hierarchical listing of all site elements by name, content type, size, date last modified, and other information. All three views are connected so that any element you click on in one view appears in the other two views. And since analyzing large sites can be overwhelming, smart filters let you see just the elements you want. These filters show only the broken links, for example, or just the text and graphic files on a site. Once you've analyzed a site, simply save
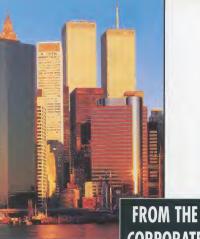
the report as a project for offline browsing, backup, and duplication.

Ace Reporter WebAnalyzer includes summary statistics for files and links, giving you quick feedback and an overview of how efficient and effective your site architecture is. It also acts as an offline browser, retrieving entire sites and saving them locally. However, for serious offline browsing you'll be better served by Traveling Software's $29 WebEx.

WebAnalyzer is solid but not without its share of drawbacks. There are many file types that it can't recognize,

including VRML, Java, and Shockwave, all of which it identifies as unknown content. It's incompatible with certain GIF and JPEG formats, and we experienced broken link errors for image maps that were in fact intact. Also, WebAnalyzer only alerts you to broken links, and does nothing to help you fix them, which would be a nice trick. For now, you still have to go into your trusty HTML editor to fix anything. Despite these minor disadvantages, WebAnalyzer 1.1 will save you countless Web-site management hours and is a must-buy for serious Webmasters. **RICH SCHWERIN**

Guide to the Ratings: ★★★★★ Excellent ★★★★ Good ★★★ Acceptable ★★ Poor ★ Unacceptable
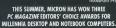
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Source: *PC World* Reliability & Service Monitor, May 20 - November 20, 1995

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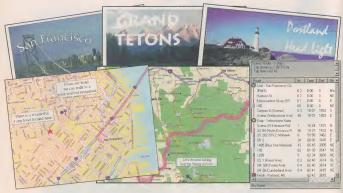
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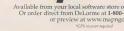
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Jump-start Your **Brain**

BY RON WHITE

OK, that's quite enough lollygagging on the beach, coaxing your gardenias into a slow death, reading Danielle Steele novels, and watching reruns of the Home Potato Channel. Summer's almost over and it's time to get your brain back in gear. (You do remember your brain, don't you? That's the organ you put into storage along with your snow boots at summer solstice.) Here are some CD-ROMs that'll give you something to think about—or at least they claim to. Some might not exactly be rocket science—well, one of them is—but they'll ease you back into thinking mode. There are even some CDs for your kids, who have to go back to school even if you don't.

OUR SECRET CENTURY ◐◐◐◐

Take Mystery Science Theater 3000 and get rid of the spacemen. Replace them with harried housewives whose lives are made meaningful by getting a designer telephone. Toss in depressed steel workers, shy teenagers maneuvering for acceptance, and girls' dolls doomed because they lack safety belts. What do you get? Our Secret Century, four volumes of vintage documentary and self-help films that mirror the Ozzie and Harriet values of our

society. You won't find these movies at Blockbuster Video, or even in the Hollywood archives. They're from a stock of 33,000 films from the private collection of media archeologist Rick Prelinger. (Two volumes come in a set.) Four additional volume sets are planned for later this year. With its wry, slightly disturbing look at cultural and historical material, Our Secret Century is a thinking CD set peppered with nostalgic humor.

Our Secret Century: Archival Films from the Darker Side of the American Dream Vols. 1–2 and 3–4 / The Voyager Company / (800) 446-2001 / $35 list price per set / *Reader Service No. 720*

STARRY NIGHT ◐◐◐

If you could use some culture, Vincent Van Gogh is a good place to start. Starry Night isn't just about art. It's about astronomy, technology, history, and society, all illuminated by Van Gogh's painting. The CD theorizes that the painter was less a lunatic than an astute observer of his civilization. As usual, Voyager bases its discs on material from another medium (in this case, the writings of Albert Boime), and the result is a lack of interactivity—PC potato material. Still, it's fascinating stuff with refreshing ideas, and it makes good use of visuals.

Starry Night / The Voyager Company / (800) 446-2001 / $40 list price / *Reader Service No. 721*

Mad or Misunderstood? Study Van Gogh's art and ideas in Starry Night.

VINCENT VAN GOGH REVISITED ◐◐

Can't get enough Van Gogh? I know how you feel. Here's a little more—very little. Although this CD covers more areas of his life than Voyager's Starry Night, it doesn't get beneath the surface of the artist, his paintings, or his influences. For example, there's a section called, "Was He Insane?" It takes a minute or two to answer that one—maybe, maybe not, doesn't matter. The CD has a decent index and an option to look at the details of some paintings, although you can't pick which details. The most irritating feature: pronouncing Van Gogh as *van gock.* Oh, spare me.

Vincent Van Gogh Revisited / Philips Media / (800) 883-3767, (310) 444-6100 / $45 est. street price / *Reader Service No. 722*

'50s Kids: Our Secret Century takes an askew look at American society.

◐◐◐◐◐ *Cup of java and a slap in the face.* ◐◐◐◐ *Jolt cola and a good yawn.* ◐◐◐ *Mom shouting at you to get up.* ◐◐ *Catnap in the storeroom.* ◐ *Snooze alarm.*

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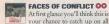
Quality Capsule: CNN Time Capsule takes a thoughtful look back at 1995.

CNN TIME CAPSULE: THE DEFINING MOMENTS OF 1995
●●●●●

CNN Time Capsule: The Defining Moments of 1995 is thoughtfully designed, letting you skim a topic's surface or dig in deep. Pick from the CD's top stories of the year, search by place or keyword, check for top stories of each day of the year, or go online for more timely news. The video and interviews are intelligent, and the presentation is spiffy. One complaint: I couldn't turn off the irritating audible *click* that accompanies each mouse click.

CNN Time Capsule: The Defining Moments of 1995 / Graphix Zone / (800) 828-3838, (714) 833-3838 / $30 est. street price / Reader Service No. 723

FACES OF CONFLICT ●●

At first glance you'll think this is your chance to catch up on all those world atrocities you've been neglecting. But this disc has too little info, too poorly explained. The best bit is a globe that highlights 20 hot spots. Clicking on a spot produces a video and a thumbnail explanation of what all the killing is about. But Faces of Conflict never delivers on its title. Instead of looking at individuals affected by the conflicts, you get only slide shows with voice-overs and some elementary facts and figures about trouble spots.

Faces of Conflict / Graphix Zone / (800) 828-3838, (714) 833-3838 / $30 est. street price / Reader Service No. 724

ASK ISAAC ASIMOV ... ABOUT SPACE ●●

This glacially slow CD starts off with a hologram of Isaac Asimov saying that he's not really there. That's a big understatement, considering he's dead. The gimmick is that the sci-fi writer is at

the Imperial Library on the planet Trantor, and he's going to answer all your questions about space. That is, if you have only five of them—about the seasons, shooting stars, phases of the moon, eclipses, and why stars twinkle. There are some interactive toys for each answer that help a little, but they're still confusing. I couldn't get one gadget called Gas Boy to work, but then I don't know if I really want something called Gas Boy to do its stuff.

Ask Isaac Asimov ... About Space / Enteractive / (800) 452-9999, (212) 221-6559 / $25 est. street price / Reader Service No. 725

EXPLORERS OF THE NEW WORLD ●●

OK, let's forget about the present. Take a trip back in time—but hold on to that return ticket. This CD earnestly tries to bring a sense of adventure and personality to history, and certainly you'd think they could with material on Columbus, Cortés, and other seafaring dudes. But Explorers of the New World, which relies on photorealistic settings and video character animation, shares the explorers' experiences at the level of a badly rated educational film. The excitement of discovering a new world is reduced to a few terse comments and videos about canoes, flowers, and parrots. There's a time line that doesn't lead anywhere, and text you can read in half the time it takes a narrator to read it to you. And the melodramatic music? That gets old *real* fast.

Explorers of the New World / SoftKey / (800) 227-5609, (617) 494-1200 / $40 est. street price / Reader Service No. 726

SNOOTZ MATH TREK ●●●●

If you think your brain needs a jump start, think of your children's—it's been subsisting on Nickelodeon all

Shhh! Don't tell your kids that Snootz Math Trek is educational, too.

summer. Snootz Math Trek is so good that if you don't tell your kids it's educational, they might never know. This CD has lots to do and lots to explore and oh, it just happens to teach multiple-step problem solving, spatial visualization, the use of coordinates, manipulation of geometric shapes, cause and effect, symbols, codes, and more. An intergalactic Snootian encrypts secret messages children can share with friends. The instructions are clear and the help feature is handy. Why don't they make programs this good for adults?

Snootz Math Trek / Theatrix Interactive / (800) 955-8749, (510) 658-2800 / $35 est. street price / Reader Service No. 727

TRAVELRAMA USA ●●●

This CD tries to make geography fun, which is more a noble ideal than a reality. Travelrama USA is a game for up to four players, and its object is to drive or fly to different locations across the United States and collect postcards before you exceed the allotted mileage. When you arrive at a city, postcards pop up to show you the city's top attractions. However, the game tends to overpower the educational aspects of this disc. Instead of learning about a particular location from the postcards, there's a tendency to blast through the postcards you don't need until you find the one you do. Well, at least they tried.

Travelrama USA / Sanctuary Woods / (800) 943-3664, (415) 286-6000 / $20 list price / Reader Service No. 728

THE MULTIMEDIA BUG BOOK ●●●

Of course, few things hold as much attraction for kids as icky, crawly bugs. This CD should satiate children's fascination. The scenario is that Dr. Anson Pantz (really) accidentally let go of his bug collection, and you have to prowl through his backyard to help catch them with your trusty net. When you capture a bug, you're rewarded with video clips and images of that particular insect. The educational buzz is on bugs, but with the hunting, puzzles, and games, The Multimedia Bug Book seems more like an arcade game.

The Multimedia Bug Book / Workman/Expert / (800) 759-2562 / $50 est. street price / Reader Service No. 729

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familiar interface of Microsoft Office for Windows 95, it
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and other interactive functions so your site will really
come to life.

5th Annual
Windows
Superguide

BY ED BOTT AND WOODY LEONHARD

I t's a 32-bit world. Finally. No matter what type of business you're in, there's a 32-bit version of Windows to fit your needs. For the vast majority of PC users working on average day-to-day tasks, there's Windows 95. And for the information elite, who need 32-bit applications that run in a high-performance, high-security, bulletproof working environment, there's the upcoming Windows NT 4.0. Both

Make Windows 95 and

operating systems, despite some crucial differences, share a common interface and a growing roster of essential productivity applications. And this year, for the first time, they share top billing in *PC Computing*'s annual Windows Superguide.

For the fifth edition, we asked Windows superexperts Ed Bott and Woody Leonhard to dig deep into their treasure trove of insider's tips, covering the essential tasks that every Windows user faces, every day. This is truly the ultimate Windows Superguide— a complete road map to the new 32-bit landscape.

NT 4.0 work the way *you* want

Custom **Configuration**

We've said it before and we'll say it again: Windows 95 may take only a few hours to install, but it can take weeks or months to configure properly. That's especially true if you're an experienced Windows user. Besides unlearning all the secret Windows 3.1 settings and Program Manager shortcuts that are irrelevant in Windows 95, you'll face a long list of options whose default settings are guaranteed to make every action take twice as many steps as it should. Our recipe for maximizing your Windows 95 productivity is based on the principle that simple is almost always better. Don't take any default for granted; instead, use the Control Panel and the ubiquitous right–mouse-button Properties menus to disable unnecessary confirmation dialog boxes and fine-tune the features you need. Then organize the desktop and the Start menu to put the programs you need as close as possible. Most of these steps are easy, and we won't go over the basics here. But we bet we've found a few shortcuts you've never thought of.

Quick Connections

How can I install Windows 95 on a new PC when the computer doesn't have a CD-ROM drive? I have only the CD-ROM version of the software.

Quick Results: Do the Right-Click

With Windows 95, the right-mouse-button finally makes up for all those years when it was practically pointless. Right-clicks typically pop up useful context menus, and you'll be amazed at the places where a right-click comes in handy.

• **Windows Explorer** In the Windows Explorer and folder windows, right-click to cut or copy files from one folder and paste them into another.

• **Dialog Boxes** In common dialog boxes (File/Open, File/Save), right-click on one or more files or folders to rename or copy the selection, or create a new folder.

• **My Computer** The Properties menu for My Computer gives you quick and easy access to the Control Panel System applet.

• **Network Neighborhood** Right-click on the Network Neighborhood and choose Properties to reconfigure network components.

• **Selected Text** On any selected text (such as a filename), right-clicking gives you a Copy choice, even in applications that don't allow editing, such as Web browsers. This feature is especially useful on the Open line in the Run dialog box (or any place you might want to paste a filename).

This is a particularly vexing problem with new notebooks, which rarely include a built-in CD-ROM player. Fortunately, a pair of old-but-useful MS-DOS utilities offer a simple solution, as long as you can maneuver the new PC close to another machine that does have a CD-ROM drive. First, connect the two systems with a null-modem serial cable or a bidirectional parallel cable. On the desktop PC, run Intersvr.exe; because it requires MS-DOS mode, you'll first need to load real-mode drivers for the CD-ROM drive or copy the entire Win95 folder from the CD-ROM to the hard disk. Next, create a boot disk for the computer without a CD player, copy Interlnk.exe to the disk, and create a CONFIG.SYS file containing the line Device=Interlnk.exe. After both machines have restarted, you'll be able to access all the desktop machine's drives from the new PC. Can't find these archaic but functional command-line utilities? Look on the Windows 95 CD-ROM in the Other\Oldmsdos folder.

Tame the Recycle Bin

I use the Recycle Bin rarely, if ever, and all those deleted files use too much disk space.

This politically correct knockoff of the Macintosh trash can is a great idea. But like so much of Windows 95, it's sabotaged by dumb defaults. One of the first things you should do after installing Windows 95 is right-click on the Recycle Bin icon, choose Properties, and adjust these settings. You *could* check the box labeled Do Not Move Files to the Recycle Bin, but disabling it has an unfortunate side effect: Every time you delete a file, you'll have to confirm your decision in an Are You Sure? dialog box. Instead, open the Recycle Bin properties sheet and move the Maximum Size of Recycle Bin slider to the left until it reads 1%. On a 1GB drive, that will reduce the space reserved for deleted files from its mind-boggling, disk-gobbling 100MB default value to a more reasonable 10MB. Now remove the check from the box labeled Display Delete Confirmation Dialog. With these defaults, you may never even notice that the Recycle Bin is running in the background.

Master the Taskbar

I want to keep Taskbar buttons in a precise order so that I always know how to switch from one application to the other. How can it be done?

There's only one way to line up your Taskbar icons in an absolutely predictable left-to-right order every time you start Windows 95: Start each application in sequence, and don't shut down a single one until you're ready to close them all. There's no way to reorder Taskbar buttons once they're loaded, and even an MS-DOS batch file won't reliably load your Windows applications in order—buttons appear on the Taskbar in the order they *finish* loading, not the order

in which they're launched. If you're willing to sacrifice the dynamics of the Taskbar for a fixed row of buttons, third-party program launchers like the Microsoft Office Shortcut Bar and Starfish Software's Dashboard offer a partial solution to the problem.

Smooth Moves

I routinely store files in a handful of locations, yet moving data from one place to another takes many clicks. Is there a shortcut?

Once you learn how versatile the Send To menu is, you'll find dozens of uses for it. This context menu appears when
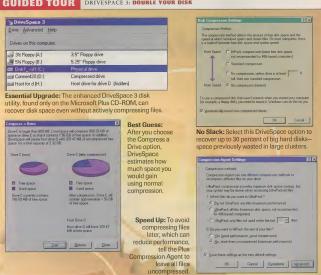
you right-click on any file or folder. When you first install Windows 95, it contains shortcuts to floppy disks, printers, and Briefcase files. Choose one of these destinations, click, and—zap!—the selected object goes there. The good news is you can create a shortcut to any application or folder and add it to the SendTo folder, which

you'll find directly under the Windows folder (or under your personal folder if you've enabled personal profiles on your system). Fill the SendTo folder with shortcuts to Notepad, WordPad, common data folders, or a shared network directory. You don't even need to include the %1 replaceable parameter for applications,

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GUIDED TOUR — DRIVESPACE 3: **DOUBLE YOUR DISK**

Essential Upgrade: The enhanced DriveSpace 3 disk utility, found only on the Microsoft Plus CD-ROM, can recover disk space even without actively compressing files.

No Slack: Select this DriveSpace option to recover up to 30 percent of big hard disks—space previously wasted in large clusters.

Best Guess: After you choose the Compress a Drive option, DriveSpace estimates how much space you would gain using normal compression.

Speed Up: To avoid compressing files later, which can reduce performance, tell the Plus Compression Agent to leave all files uncompressed.

although it's a good idea to enclose the full pathname in quotes if it contains any spaces.

All in a Day's Work

Is there a way to click one button to find all the files I created or changed today so I can back them up to a safe place all at once?
Accomplishing this task is neither as easy nor as neat as it should be. The first challenge is to find only files stamped with today's date. Click on the Start menu and choose Find, then Files or Folders. On the Date Modified tab, you could simply specify today's date in both fields of the Between option; the trouble is, you can't save that choice and then reuse the search. Instead, select the During

the Previous 1 Day(s) option. This will find any files changed or saved yesterday or today. Sort the search results by date to force today's work to float to the top.

The second challenge is to weed out files that aren't appropriate for backup, such as the Windows swap file, Internet history and cache files, and other temporary Windows working files. On the Name & Location tab, specify wildcards for relevant filenames and extensions in the Named box (find all Word and Excel documents, for example, by entering *doc;*.xl?); you may also indicate one or more folders in the Look In box. In either entry, separate multiple items with semicolons. Click on Find Now to run the search, and select any of the files in the resulting list to make backup copies. To save the

search, choose File, then Save Search. Windows will plop an icon on your desktop without any feedback. Give the resulting icon a meaningful name like Find Recent Files, and put it on the Start menu, or anywhere you can get to it in a hurry.

Version Confusion

How can I tell at a glance which version of Windows 95 is running on a given system?
Right-click on My Computer, choose Properties, and inspect the General tab. The original release of Windows 95 is version 4.00.950. If you've installed Service Pack 1, you'll see an *a* at the end of this identifier. Properties sheets for updated system files like kernel32.dll may identify them as version 4.00.951.

Windows NT Takes Control

There's one fundamental difference between Windows 95 and Windows NT. With the freedom, you're the boss, with the freedom to add and remove applications, and even reformat the hard drive. In the world of NT, those privileges are reserved for system administrators. If you don't have that level of permissions, you may find that even simple tasks require someone else's help.

Dual-Boot Cautions

Can I set up a dual-boot PC with both Windows 95 and Windows NT?
Yes, you can install Windows 95 and Windows NT 4.0 (workstation or server edition) on the same computer and choose either operating system at boot time—but be prepared to live by some severe restrictions. If you use the NTFS file system on the NT side, you will not be able to see those files when booting into Windows 95. Likewise, if you use DriveSpace compression or the new FAT32 disk partitioning

software in Windows 95, that volume will be invisible when you start Windows NT. There's no way to migrate your applications from 95 to NT, either. When you install an application, remember to install it under both operating systems.

Personal Menus

How do I make it easy for users to find their Personal folders?
Finding the SendTo folder—or the Start menu or Desktop or Favorites folder, for that matter—takes extra typing in Windows NT because the operating system creates

a separate set of these files for every user under the \Profiles*Username* folder. To create universal shortcuts to these folders, log in as Administrator and create a new shortcut in the \Profiles\All Users\Start Menu folder. Enter the following command: Explorer /e, /root, %userprofile%. Call the shortcut something like Personal Folders. Each user will see the new shortcut on the Start menu, just above the Programs choice, and double-clicking will take the user directly to an Explorer-style view of his or her own folders only.

Return of Taskman

How do I kill an ill-behaved application running under Windows NT?
Beta 2 of Windows NT 4.0 marked the debut of the updated NT Task Manager.

Like its Windows 95 counterpart, it responds to Ctrl-Alt-Del by popping up a list of running programs and giving you the option to kill any one of them with a single click. Thanks to NT's powerful memory protection, the Task Manager can almost always prevail over a hung application. A new Task Manager tab lets you exercise the same life-or-death control over background processes that don't normally appear as running applications. A third tab gives you a close-up view of CPU and memory usage. Best of all, the Task Manager shrinks to a tiny tray icon when you minimize it. Right-click on the Taskbar to pop up a menu choice for the Task Manager. Or find Taskmgr.exe in the Winnt\System32 folder and drag it to the Start button.

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Like its Windows 95 counterpart, it responds to Ctrl-Alt-Del by popping up a list of running programs

Get a Grip on Your **Files**

Many people upgrade to Windows 95 but never venture far beyond the Start button: They're the same folks who buy a 24-blade Swiss Army knife but use only the screwdriver and nail file. Once you decide to go a few clicks deeper—to make Windows work for you, not against you—you'll discover that Explorer rates as the tool of first resort. Much more than a simple Windows 3.x–style file manager, Explorer uses the same tree-and-list approach to display your desktop, shared computers on a local area network, many key parts of the Registry, and even your printers and fonts. Someday soon it will also offer a window on the Web. Unfortunately, Explorer suffers from several maddening flaws. And the worst part is that these design mistakes were deliberate, ostensibly to keep novices from hurting themselves. Fortunately, there are enough useful tools in Explorer's collection to help you accomplish any common task—even if it sometimes takes an extra click or two.

Show All Files

How can I see every file, complete with file extensions, on every drive?

The *very first thing* every Windows 95 user should do, after installing the operating system, is to open Explorer;

choose View, Options; switch to the View tab; and click on Show All Files. Until you manually make this switch, Explorer refuses to show any files with DLL, SYS, VXD, 386, and DRV extensions—in other words, all the key files on your drives—as well as the folder C:\Windows\Desktop. While you're at it, uncheck the Hide MS-DOS File Extensions for File Types that Are Registered box. As long as you have this box checked, it's almost impossible to change a file's extension. For example, if you right-click on the file sometext.txt and try to rename it sometext.csv, the filename will actually be changed to sometext.csv.txt, and Explorer won't give you a clue that it's shanghaied the extension.

Starting Folder

Can Windows Explorer show the contents of D:\Myfolder instead of its default setting, the root of C:\?

Right-click on the Start button and choose Explore, then look in the Programs folder for a shortcut called Windows Explorer. Right-click on the shortcut and

choose Properties. Click on the Shortcut tab. Depending on where you've installed Windows, the entry in the Target box should look something like C:\Windows\Explorer.exe /n, /e, C:\. That command starts Explorer; the /e switch causes it to start in the tree-and-list Explorer view (as opposed to the one-pane folder view), and the C:\ tells Explorer where to begin. (The /n switch—which theoretically forces Explorer to start in a brand new window—in fact does absolutely nothing here. Play with it and you'll see.) To convince Explorer to open with the contents of D:\Myfolder showing in the right pane, edit the entry in the Target box to read C:\Windows\Explorer.exe /e, D:\Myfolder. Note that you can also use this trick on shortcuts you create on the desktop, on the Start menu, or even in program launchers such as the Microsoft Office Shortcut Bar.

Copying and Moving

Moving or copying files by dragging them around in Explorer is awkward. Is there a simpler shortcut?

The easiest general-purpose alternative to the drag-and-drop Explorer technique is to select the files or folders you want to move or copy, use Edit/Cut (to move) or Edit/Copy (to copy), navigate to the destination, and use Edit/Paste to place the files or folders in their new location. If you're a keyboard nut, Ctrl-X will cut, Ctrl-C will copy, and Ctrl-V will paste. To copy a file to a diskette, just right-click on the file, pick Send To, and choose the appropriate diskette drive. If you commonly *move* files to a specific folder, say C:\Archive, open Explorer, right-click on the C:\Archive folder, drag it to C:\Windows\SendTo, and pick Create Shortcut Here. In the future, if you right-click on a file and pick Send To, the C:\Archive folder will appear as an optional destination. Note that when

Quick Results: Changing Icons

Changing the default desktop icons requires playing with the Registry. Start by backing up your Registry (see "The Registry: Safety Is Job #1," page 131). Then, depending on which picture you want to change, look for these entries (*HKCR* = HKEY_CLASSES_ROOT):

- **My Computer** Find *HKCR*\CLSID\{20D04FE0-3AEA-1069-A2D8-08002B30309D}\DefaultIcon. Change the (Default) value.

- **Network Neighborhood** Find *HKCR*\CLSID\{208D2C60-3AEA-1069-A2D7-08002B30309D}\DefaultIcon. Change the (Default) value.

- **Recycle Bin** You'll find three icon values stored in *HKCR*\CLSID\{645FF040-5081-101B-9F08-00AA002F954E}\DefaultIcon. The (Default) value is the one currently shown on the desktop, the empty and full values are swapped into (Default) as needed.

- **The Exchange Inbox** Find *HKCR*\CLSID\{00020D75-0000-0000-C000-000000000046}\DefaultIcon. Change the (Default) value.

- **Vanishing Icons** To make any icon invisible, find a "transparent" icon (like Visual Basic's screen.ico) and use it in the (Default) value.

It's your business.
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the file you're moving is on the same logical drive as the one in the SendTo folder, this trick only moves the file—it won't create a copy.

Using Notepad

How can I move Notepad to the top of the list of applications I use to open a file?

When you double-click on a file with an unregistered extension (say, readme.1st) you get an Open With dialog box that lists dozens of programs you can use to open the file. This list is arranged alphabetically, a fact you can use to control the order of items on the list. Make a copy of C:\Windows\ Notepad.exe called C:\Windows_Note-pad.exe (note the underscore). Open an Explorer window; choose View, Options; select the File Types tab; then

click on New Type. In the box labeled Associated Extension type dummy (or some other filename extension you never expect to use). Click on the New button under the blank Actions window. In the Action box, type Open. Then click on the Browse button and find C:\Windows_Notepad .exe. Keep clicking on OK until you're back at the Explorer window. Now any time you double-click on a

file with an undefined extension, the Open With dialog box will list _Notepad first.

Editing BATs

Is there a way to edit, not run, a batch file when I double-click on its entry in an Explorer window?

Windows 95 actively prevents you

STEP BY STEP THE REGISTRY: **SAFETY IS JOB #1**

1. Warning! An incorrect Registry change could harm your system. Back up your hard drive first. Then click on Start, then Run; type regedit; and hit Enter to start the Registry Editor.

2. Play It Safe: Make a complete backup of your Registry by clicking on Registry, then Export Registry File. Be sure to give the backup file a name that does not end in reg.

3. Find What You Need: Scroll down to the key you want to change, in this case HKEY_CLASSES_ROOT\batfile. Existing values will appear on the right.

4. Make the Move: Change the value by double-clicking on it and typing in the new data. Sometimes you have to restart Windows 95 for the change to take effect.

from changing the double-click default for the BAT extension from Run to Edit. If you open Explorer, choose View, Options, switch to the File Types tab, scroll down to MS-DOS Batch File, and click Edit, you would expect to be able to change the default behavior by clicking once on the Edit action, then clicking on Set Default. Unfortunately, Windows 95 grays out the Set Default button. Fortunately, you can take matters into your own hands by hacking the Registry. Run Regedit, taking care to make a backup before you do anything else (see "The Registry: Safety Is Job #1," page 131). Change the HKEY_CLASSES_ROOT\ batfile key's EditFlags value from D0 04 00 00 to D0 00 00 00. Close Regedit. Now go back into Explorer, and the Set Default key will no longer be grayed out. Set Edit as the default, and every time you double-click on a BAT file, Notepad will pop up with the file already loaded for you to modify.

Rename the Recycle Bin

Can I change the name of the Recycle Bin?

It's easy to change the names of most of the standard desktop icons—replacing the cutesy My Computer, for example, with something a little more dignified—by simply right-clicking on the icon and choosing Rename. So it's hard to imagine why Microsoft overlooked this one. To change the Recycle Bin's name, you'll have to go into the Registry again. Run Regedit, make a backup of the Registry, then scroll down to the key

called HKEY_CLASSES_ROOT\CLSID\ {645FF040-5081-101B-9F08-00AA002F954E}, and change the (Default) value to whatever you want—say, Trash Can. Restart Windows 95 (choosing Close All Programs and Log On as a Different User is sufficient), and the Recycle Bin will have a new name. Note that you can completely eliminate the name of any of the standard desktop icons: Simply rename the icon and make the new name a space. Look in the Quick Results sidebar at the front of this section to see the keys for some other common icons. Keys for the Microsoft Network and Internet icons are HKCR\ CLSID\{00028B00-0000-0000-C000-000000000046}\DefaultIcon and HKCR\CLSID\{FBF23B42-E3F0-101B-8488-00AA003E56F8}\ DefaultIcon, respectively.

File Handling NT–Style

There's no visible difference between the Windows 95 Explorer and its Windows NT 4.0 counterpart. Under the surface, though, there are differences between the file systems used by the operating systems: NT 4.0's security-conscious NTFS adds a Security tab to every file and folder's properties sheet; it also permits data compression on a case-by-case basis.

The Desktop

Where are shortcuts and other objects I've placed on my desktop really stored?

If you've spent some time on a Windows 95 PC, you've probably become accustomed to opening the \Windows\Desktop folder. That's the easy-to-remember location for a simple, easy-to-use operating system intended for a single user.

On a Windows NT system, though, you'll need to go at least two layers deeper to find your Desktop folder. Because NT is designed to allow multiple users to log in without

stomping all over each other's data, every user gets a separate Desktop folder stored alongside a brace of other user-specific folders (Start Menu, Favorites, and the like) beneath the \Winnt\Profiles\Username hierarchy of folders.

With Windows applications that use the new, Windows 95–style common dialog boxes, this distinction is pretty much academic—you'll always find the Desktop at the top of the Explorer tree. But for older Windows and DOS apps, it's helpful to know how to quickly find your own Desktop when you want to save or open a file.

Program Groups

What happens when I install a new application under Windows NT 4.0?

That depends on what type of user you are. If you've been given the permissions of an ordinary user or power user, the application will be available to you alone. Any program groups created by the setup program will appear only on your personal Start menu. On the other hand, if you have logged in with administrator privileges, the installation will appear by default in the Common groups found at the bottom of the Programs list for every user of that system. Look in \Winnt\Profiles\All Users\Start Menu to manually remove or add items to this list. Of course, you'll need administrator rights to do that, too.

File Compression

How do I compress and decompress files using Windows NT?

If you've set up NT to use the Windows 95–compatible FAT file system, you have no compression options. Old volumes compressed with any version of Drive-Space will be unavailable to NT. On NTFS volumes, you can compress individual files, folders, or entire drives by simply checking a box on the Objects properties sheet. When you compress a whole folder, any new files added to that folder are automatically compressed as well. Want to use Windows NT Explorer to see which files and folders are compressed? Open any folder window; choose View, Options; and on the View tab check the box labeled Display Compressed Files and Folders with Alternate Color.

Outstanding Output

It's never been more important to present your ideas clearly and concisely. Windows 95 includes a complete set of tools to help you get your thoughts on paper—even when the "paper" is strictly virtual, as in a Web page. Take advantage of those tools and you'll find that you get your point across quicker and more effectively than ever before. Abuse the tools, and your audience will suffer with Ransom Note fonts and documents that have *amateur* written all over them. This chapter tackles the tough questions you'll have when trying to get documents out of your machine and into the physical world. It also includes a couple of previously undocumented tips to help you move fonts between machines, and pointers to important Web sites with dozens of tricks to make your HTML pages leap from the screen.

Switching Trays

My Hewlett-Packard LaserJet 4 has both the standard paper tray and a manual-feed tray. How do I quickly switch from the default paper tray to manual feed and back?

Install a second copy of the printer driver and set it up to default to manual feed. Double-click on My Computer, Printers, and Add Printer. Follow the wizard to install a second printer driver—attached to your current printer port—that's the same as the first, and give it a name like LJ4 Manual Feed. (No, you don't want to make it your default printer.) Right-click on the new icon, pick Properties, and set this printer driver to manual feed (usually under the Paper tab). To quickly switch to manual feed, simply select this second LJ4 driver in the Print dialog box. To switch back, pick the original driver in the Print dialog.

Copying Fonts

How do I copy one or more fonts from another machine onto my PC, using a local area network?

If you double-click on the Fonts shortcut in the Control Panel or use Explorer to navigate to your \Windows\Fonts folder, Windows 95 brings up a phony folder that lists all the fonts currently installed on your
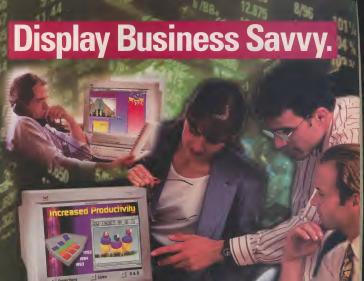
PC—whether the TTF font files are physically located in \Windows\Fonts or not. (If the font resides outside the \Windows\Fonts folder, you'll see a "shortcut" arrow in the lower left corner of the font's icon.) Even more bizarre, if you use Explorer to look in another networked computer's \Windows\Fonts folder, you'll still see a list of all the fonts that are currently installed on your computer. Windows Explorer will not let you view the fonts stored on someone else's machine. Period.

There are two ways to install fonts from a networked PC onto yours. The fastest technique is to open your Fonts folder; choose File, then Add New Font; hit the Network button; and browse to your coworker's \Windows\Fonts folder. But if you do that, you can't double-click on the TTF files to preview a font before installing it. The alternative is to map your coworker's hard drive to a free drive letter, open an MS-DOS prompt window, navigate to the \Windows\Fonts folder on the mapped drive, then COPY *.TTF to any convenient location on your hard drive. Now you can install the new fonts by simply dragging them into your Fonts folder.

Page Breaks

Why don't the line and page breaks in a printed document match what I see on the screen in my word processor?

Sometimes it's the fault of the word processor, but most frequently the problem lies in the way fonts are rendered onscreen: That is, the font you see on the screen is not identical to the one that gets sent to the printer. Built-in printer fonts are notorious for this kind of dissonance. Eliminate the problems by sticking with TrueType fonts (generally identified with a *TT* in the drop-down font boxes found in many applications). You can even force Windows 95 to ignore non-TrueType fonts: Open the Fonts

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ViewSonic GT800	20"/19.1"	0.30mm*	1,600 x 1,280	Yes		$1,899
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folder; click on View, Options; select the TrueType tab; and check the Show Only TrueType Fonts box. If you must use PostScript Type 1 fonts, make sure you have installed the most recent version of Adobe Type Manager.

HTML Formatting

My HTML files look downright strange and the HTML editor either refuses to open the file, shows unexpected text and formatting on the screen, or shuts down with a General Protection Fault. What's happening?

Most of the time, bizarre Web-page formatting problems can be traced to missing tags. For example, a <B> tag, which turns subsequent text bold, must be matched with a corresponding </B> tag, which turns off the bold characteristic.

If you can't open your HTML file with one of the common Web authoring packages, such as Internet Assistant for Word, try using Notepad or a word processor to open the file as plain text. Scan the file for HTML tags with missing mates. If you're ready to go crazy—and when the page has more than a few formatting tags, you will—try an automatic scanner. We recommend Neil Bowers' Weblint, available for $16.95 per year. (A six-month trial version is available for $9.95.)

GUIDED TOUR | STOP THE PRESSES: **BATCH PRINTOUTS**

Add Printer Wizard

You can type a name for this printer, or you can use the name supplied. Helow. When you have finished, click Next.

Printer name:

LJ4 Hold Output

Do you want your Windows-based programs to use this printer as the default printer?

○ Yes
● No

Hold It: Desktop users—particularly those with shared printers—may want to use the Add Printer wizard to create a "new" printer that saves print jobs until they're manually released.

Printers Folder

? LJ4 Upstairs printer has 3 job(s)
To start printing these jobs, click Yes. To pause printing, click No. To delete these jobs, click Cancel.

Yes | No | Cancel

Get It: Portable users needn't pause or resume manually—Windows 95 takes care of it. When you plug your portable into a printer, you'll see a message like this. Click on Yes and printing starts.

Printers Folder

There was an error writing to \\Woody\lj4 for printer (LJ4 Upstairs). The network printer is no longer available. Contact your system administrator, or try using a different printer. This printer will be set to work offline.
To save your print job in the local printer queue, click OK.

OK | Cancel

Lose It: If your PC has been disconnected from the network printer, some applications such as Word refuse to print, but others like WordPad (shown here) spool output until later.

LJ4 Upstairs

Printer | Document | View | Help

Document Name	Status
96SG02 - Windows Explor...	Paused
96SG03 - Printing and Pub...	Paused
Win95SG.Explorer.doc	Paused

3 jobs in queue

Find It: On computers disconnected from the network printer or portable systems detached from their printers, you can see current spooled output status by double-clicking on the Printers folder.

Behind the Scenes

I've run across a great-looking World Wide Web page. How can I create the same effect in my own Web pages?

HTML documents consist of ASCII text exclusively, so borrowing great ideas from other Web authors requires only the Windows Clipboard. Use your browser's View menu to switch the display to the underlying HTML source code. (Netscape Navigator opens its own viewer; Microsoft's Internet Explorer takes you to Notepad.) Select the section of the document you want to copy—or the entire window—and press Ctrl-C. Now you can switch to your HTML editor, paste in the copied section, and edit the text for your page.

If you want to know not only how

the effect was done but how the imported tags work, we recommend checking out Carl Tashian's How Do They Do That with HTML? page at www.nashville.net/~carl/htmlguide/index.html.

ASCII Files

What's the easiest way to turn a formatted document into a simple ASCII text file?

A few word processors can do the conversion automatically, but many programs cannot. In those cases, force the program to "print" to a file.

Windows 95 includes a special printer driver called Generic/Text Only that frequently produces a usable ASCII file. Install this driver, then set it up so when you "print" to the Generic/Text Only printer, Windows asks you to

provide a file name. Double-click on My Computer, Printers, and Add Printer. Tell the wizard you want a Local Printer, the Manufacturer is Generic, and then pick FILE: from the Available Ports box. No, you don't want it to be your default printer.

While you're adding printers, make sure you have at least one PCL and one PostScript printer driver available. Having these phantom printers around can help you track down printing problems. Use the wizard to install both the Apple LaserWriter and Hewlett-Packard LaserJet Series II drivers, pointing both of them to FILE: in the Available Ports box. Later, if you have trouble printing a file, try to print to one of these nonexistent printers. If the file prints this time, the problem may reside in your printer's dedicated driver.

NT Printer Power

Onscreen and off, Windows NT 4.0 looks much like Windows 95. Because of NT's richer security options, though, you get greater control over shared printers. NT printer drivers are different as well, featuring a dialog box that makes it easier to set up a new printer. Finally, check out NT's Peer Web Services, which let you quickly create intranet-ready Web servers.

Remote Printing

What's the best way to manage printers on an NT network?

Any authorized user can connect to a remote printer on a Windows NT server or workstation, just as you can with a shared Windows 95 printer. On NT networks, though, you can also administer these printers remotely—if you have Full Control access permissions. (Network users in the Administrators, Server Operators, Print Operators, and Power Users groups have this level of permission by default.)

To manage a remote

printer, open Network Neighborhood and double-click on the print server's icon. Double-click on the Printers folder and then double-click on the icon for the printer itself.

New Options

Where will I find all the options unique to each printer on my network, from paper handling to soft font installation to halftone setup?

On a printer connected to a Windows 95 computer, each driver handles these details differently. Under Windows NT 4.0, though, all these options are

grouped together on the last tab of the printer's properties sheet. Click on the Device Settings tab to review and change all printer-specific options. Those that aren't available, for whatever reason, will be grayed out.

Use the remainder of the tabs to handle common configuration details, like port assignments and device sharing. The Scheduling tab is particularly useful because it allows administrators to control spooling and even printer availability. For example, you might restrict the hours of operation for a shared color printer that uses expensive toner or paper or requires a trained operator.

Easy Web

Is NT 4.0 a Web client or a server?

Microsoft Windows NT

Workstation 4.0 is both, thanks to a suite of network services that turns your PC into a personal Web server with full FTP and Gopher capabilities. To install Peer Web Services, open the Control Panel, double-click on the Network icon, select Services, and click on the Add button. Look in the Peer Web Services Group for the full set of administrative tools. (You can also administer Peer Web Services remotely using only a Web browser.)

All the documentation for the Web server is available online in HTML-formatted pages you can read using any Web browser. These pages provide an overview of the system and most configuration options. If you've used the Internet Information Server in Windows NT Server edition, you'll find the Peer Web Services familiar.

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Making It All **Work**

Some analysts would claim that the rising popularity of multimedia devices shamed Microsoft into releasing Windows 95. That may be a little strong, but there's a kernel of truth in the argument. Adding multimedia support to a PC used to take hours, or even days, with endless iterations of jumper-twiddling and rebooting punctuated by curses. Today it's hard to imagine what the fuss was about. It's nearly impossible to find a recent-vintage sound card that doesn't slide smoothly into Windows 95. The operating system's support for CD-ROM drives is equally impressive. There's an exhaustive library of modem information files as well—so many that it's now rare to find a communication problem that's caused by anything other than line noise. But like so many parts of Windows 95, the default installation often scrimps on performance. If you know where to look, you can make data flow faster, simply by checking a box or two.

Record Results

I've installed a sound card and WAV files play properly, but the microphone isn't recording sounds. What's wrong?

Quick Results: Hardware Tune-up

Interested in squeezing maximum performance from your hardware? Open the Device Manager and inspect the properties of every device in your system. Then try these settings:

• **Floating Point** Under System Devices, look at the entry for Numeric Data Processor. On a machine with an older Pentium chip, you can disable floating-point calculations.

• **Serial Ports** Check the status of all serial ports (you'll find them under the Port heading). Make sure the Bits per Second entry is set at least as high as your modem's maximum speed.

• **FIFO Buffers** For each serial port, click on the Advanced button and check the status of the FIFO buffers. Most modern serial ports with 16550 UART chips can handle the largest settings, although you should reset to the defaults if you experience excessive communication errors.

• **Extended Capabilities Port** If your system includes an Extended Capabilities Port, you'll get fast I/O support only if you enable it manually. Search the Resource Kit for the detailed instructions on assigning the proper IRQ and DMA settings for your system.

The mike is plugged into the proper jack, right? If you've already checked the obvious connections, the problem may be a simple matter of volume. Open the Control Panel and double-click on Multimedia. On the Audio tab, look under Recording. Drag the Volume slider to the right and try again. If the slider is grayed out, you'll need to install the Sound Recorder applet (and possibly the Volume Control as well). To find these pieces, double-click on Add/Remove Programs, click on the Windows Setup tab, and expand the Multimedia group.

What's My Config?

My sound card appears to be set up correctly, but sounds don't play properly, and I have trouble enabling or disabling some of the card's features. How can I fix it?

Despite the new usability features in Windows 95, untangling sound problems is still about as easy as doing brain surgery while blindfolded. Most likely there is a resource conflict of some sort in your sound-card setup. A quick inspection of the device's properties in the Device Manager should identify the rogue resource. But that technique doesn't always work because some devices don't report all the resources they're using.

One troubleshooting approach worth trying is to attempt to use an alternate configuration for the card. Open the Device Manager, expand the Sound, Video, and Game Controllers branch; find the malfunctioning device; and click on Properties. If there's no conflict listed on the General tab, try the Resources tab. Uncheck the box labeled Use Automatic Settings, and try switching to the next ready-made configuration listed in the Setting Based On box. Although almost none of these options are documented, in every case they represent alternate resource allocations (and in some instances they disable features you might not be using, such as a CD-ROM interface). If one of these options is successful, count your blessings. If it doesn't work, call the sound card vendor and enlist its help.

Modem Massaging

How can I get my new high-speed modem working when Windows 95 doesn't have a built-in driver for it?

First, look in the box that came with the modem to see if there's a driver disk. If there is, open the Control Panel, double-click on the Modems applet, and click on the Add button. Check the box that says Don't Detect My Modem and click on Next. When you see the list of supported modems, click on the Have Disk button and point the setup program to the floppy disk. Choose your modem's name from the resulting dialog box and click on OK. Those are the easy cases.

If you can't find a driver disk but you can access the World Wide Web, look in the Windows Driver Library (www.microsoft.com/windows/software/drivers/drivers.htm) to see if

there's an update for your modem. If there is, you're in luck. Download the driver and follow the same steps to get your modem up and running.

What happens if you can't find a modem setup file? If you're comfortable with the notion of editing the Registry, install the closest match you can find, then fire up Regedit and look for HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\Class\Modem. Each installed modem gets its own four-digit heading, starting with 0000 (click on the number and look for the DriverDesc key to see the friendly name). Expand the tree for the modem you just installed and you'll find its AT command strings buried in here under plain-English headings like Answer and Hangup. Use the modem's documentation to check all settings, adjust any that are incorrect, close Regedit to accept the changes, and try your communications program again.

Mouse Puzzles

Why does the Device Manager misidentify my Microsoft mouse and report that a nonexistent IBM PS/2-style mouse port has been installed and then disabled?

Both of these conditions are the harmless results of buglets in Plug and Play detection. Windows has only one way of detecting whether you've installed a genuine Microsoft mouse or a generic work-alike, and that's to look in your original Windows 3.1 startup files for the Intellipoint driver that ships with

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GUIDED TOUR SIGHTS AND SOUNDS: **MULTIMEDIA TIPS AND TRICKS**

Simple Sound: Open the Control Panel's Multimedia Properties sheet and check Show Volume Control on the Taskbar to add a clickable speaker icon to the notification area.

Keep It Down: Click once on the Taskbar volume control button to pop up this slider; check the Mute box to quiet things down in a hurry.

Total Control: Audiophile PC owners should double-click on the Taskbar speaker icon to pop up this all-purpose enhanced volume control.

More Multimedia: There's more to multimedia than sound and CD-ROMs. Look here to enable or disable other multimedia devices.

that model. If you never installed those drivers, your mouse will be identified as a standard serial mouse. The mislabeling has no effect on its performance. As for the phantom mouse port, it appears because your motherboard offers that option, even though it's not actually in use on your computer. Again, as long as Windows correctly disables the extra port, there's no harm done.

Smooth Signals

When I try to play video clips from a CD-ROM, the results are jerky, with an unacceptable number of dropped frames. Is this as good as it gets?

Silky-smooth video is the Holy Grail of multimedia computing. It's unrealistic to expect broadcast quality, but there are a few things you can do

to reduce the rough spots. For starters, make sure you have enough CPU power and memory, because video is one of the most resource-intensive tasks you can ask a computer to perform. Next, make sure your CD-ROM cache is optimized for video. Right-click on My Computer and choose Properties, select the Performance tab, and then click on the File System button. For systems using real-mode drivers, click on No Read-Ahead in the Optimize Access Pattern For box. If you're using Windows 95's protected-mode CD-ROM drivers, click on the appropriate speed for your drive (Quad-Speed or Higher, for example) and then move the Supplemental cache size slider all the way to the right (the Large setting). If these techniques don't work, you may need a faster CD-ROM drive or video card.

Music, Maestro

How can I play music CDs automatically? Right now, nothing happens when I insert a disc into the drive.

This is a known problem if you've turned off Windows 95's AutoPlay feature. To fix it, turn Auto Insert Notification back on, or set the Windows CD Player to begin playing an audio CD as soon as it is detected. Right-click on the Start button and choose Explore. Open the Programs\Accessories\Multimedia folder, right-click on the CD Player icon, then choose Properties. On the Shortcut tab, change the entry in the Target box to: C:\Windows\CDPlayer.exe /play. Click on OK. Of course, if you've replaced the built-in Windows CD player, be sure to substitute the full name of that program's executable file.

NT's Hardware Headaches

The interfaces for Windows 95 and Windows NT 4.0 look almost exactly alike—but you'll notice the differences in an instant when you try to add a new device. When it comes to hardware, NT requires patience, technical skills, and a shelf full of manuals, which is why we don't recommend it as a day-to-day platform for multimedia aficionados.

By the Letters

How do I adjust the drive letters for disk drives, including CD-ROM drives, on an NT system?

Administrators can use the Disk Administrator tool to permanently assign a drive letter to a specific hard disk and partition/volume. When a new hard disk is added, these statically assigned drive letters will not change. On hard disks, but not on CD-ROM drives, you can choose not to assign a drive letter as well, although you may get an error message if the drive is in use. This

change does not require rebooting; as soon as you click on OK, the drive-letter assignment shifts on the fly.

Games? Not NT . . .

Will there be any games for Windows NT this year?

Game-players don't have much to look forward to in the arrival of Windows NT 4.0. But there's at least some good news: Both the server and workstation editions will ship with the full complement of Windows 95 time-wasters—Solitaire, Freecell, and Minesweeper. The Space Cadet pinball

game from the Plus CD is also due to ship with NT 4.0. And id Software has an NT version of Doom ready to go. Games developed for Windows 95 using the DirectX libraries will eventually work under NT, but probably not at first. DirectSound and DirectDraw extensions will be in the shipping version of NT, but the DirectPlay and DirectInput (joystick) support won't arrive until later. And the installer for this year's crop of Windows 95 games will generally fail under Windows NT.

New Devices

How do I add a modem, sound card, or CD-ROM drive to a Windows NT setup?

Modems are easy—just use the same INF file that you'd use on a system running

Windows 95. The AT commands and setup strings land in identical places in the Windows NT and 95 Registries. If you've enabled remote-access services in Windows NT 4.0, you'll have to go through one extra step to configure a new modem. After the modem installation completes, you'll have an opportunity to add the device to your list of supported dial-up networking connections. Adding a sound card is trickier: If there's an NT driver, you're in luck; but don't count on finding a wide array of supported devices—the shipping operating system will include drivers for only the most generic sound devices. As for CD-ROM drives, SCSI is the smartest solution. If yours is plugged into a proprietary adapter, check the Hardware Compatibility List before trying to upgrade.

NEED HELP? CALL ME!

I'M A STRESS THERAPIST, AN INTERPRETER, A GUIDANCE COUNSELOR, & EVEN A PSYCHIC GURU. (SOMETIMES I FORGET THAT I'M SELLING HOME COMPUTERS.)

I've helped so many parents choose computers for their families, I can almost read their minds. Let me guess — you want Internet access, multimedia, educational software and awesome 3-D graphics.

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Time to **Travel**

Thanks to Plug and Play, Windows 95 is absolutely, positively your best choice as an operating system for a mobile PC. On notebooks designed in the Windows 95 era, power management is effortless, and installing a PC Card is usually easier than getting cash out of your bank's ATM. Easier, that is, if you can get things configured properly before you head for the airport, which is sometimes a big *if*. Notebook PCs pose special setup challenges for Windows 95 users. How special? Take the usual configuration headaches you can expect with any desktop PC and multiply them by at least an order of magnitude. The issues start with limited resources, especially RAM and disk space. Things get more complicated when you factor in the often proprietary engineering tricks that notebook makers use to shave a few precious ounces off the total package weight. And top it off with Murphy's Law of Mobile Computing: The severity of your problem is directly proportional to the number of miles between you and your original Windows 95 distribution disks.

Hot Swapping

I have a growing collection of PC Cards. What's the right way to add and remove them?
Adding a PC Card to your system is easy: Just plug it in. The first time you use one of these peripherals, Windows 95 will detect that a new card has been inserted and will ask you for a driver (some are found on your Windows distribution CD-ROM; others require a diskette from the manufacturer). On subsequent insertions, Windows will detect the device and automatically load the driver. To remove a PC Card, click on the tiny PC Card icon in the tray. You'll see an abbreviated pop-up menu with commands to stop any PC Card drivers that are loaded. Click on the correct entry, then wait for Windows to tell you it's OK to remove the device. If PC Card support is enabled in Windows 95 but you don't see a PC Card icon in the tray, open the Control Panel, double-click on the PC Card icon, and check the Show Control on Taskbar option.

Master of Suspends

I've installed Windows 95 on my notebook, which includes Advanced Power Management features. How can I add the Suspend option to the Start menu?

The Suspend choice should appear automatically on the Start menu if your notebook supports Advanced Power Management (APM), version 1.1 or later. If it's not there, you can add it manually: Head to the Control Panel, double-click on the Power icon, and check the settings under Show Suspend Command on Start Menu. Then call the manufacturer of your notebook and find out why the APM support wasn't detected in the first place. Chances are you'll need a BIOS update to make the notebook's power management features work most effectively with Windows 95.

Power Play

Battery life on my notebook is less than ideal. Is there any way to tune its performance?
Every notebook handles power management differently using options set in the system BIOS. As long as these features follow the APM 1.1 (or later) specification, Windows 95 can control requests to go into suspend mode—closing applications, saving temporary files, and unloading drivers as needed—and can report reasonably accurate estimates of remaining battery life. To set your power management preferences, use the utility that came with the notebook. In some cases, these utilities are stored in the BIOS and triggered with a hotkey combination. Other designs require an external utility to reset power options. Pay particular attention to power supplied to hard disks, PC Card slots, and active-matrix screens, because those are the most likely causes of excessive battery usage.

Seeing Infrared

How can I put my infrared port to work?
The best use for an infrared port is to connect to networks or printers without using a cable. You'll need an infrared adapter like the JetEye Net

Quick Results: Portable Preparation

A hotel room or airport lounge is the last place you want to be when you realize your notebook won't run your most important application. Want to avoid that feeling? Here's how. . . .

• **Be Prepared** Create an emergency disk and carry it with the notebook. The Startup Disk tab in the Control Panel's Add/Remove Programs applet does it with a single click.

• **Essential Files** Have 30MB of spare disk space? Copy all the CAB files in the Win95 folder on your Windows CD to your hard drive. You'll never have to hunt for that original CD again.

• **Space Savers** If disk space is tight, delete disk-hogging options. Desktop themes and multimedia players are usually expendable. Open the Add/Remove Programs utility and carefully go through the Windows Setup tab to make sure you have only the Windows pieces you need.

• **Before You Go** Install PC Cards before you leave and verify that they work. At a minimum, try inserting and deleting the cards to ensure that the drivers load and unload properly. Test each card's basic functions, too—dialing an online service with a PC Card modem, for example.

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Plus from Extended Systems (800-235-7576, www.extendsys.com) or Hewlett-Packard's NetBeamIR Infrared Access Point (800-533-1333, www.hp.com); both models cost less than $300. Next, load the Windows 95 infrared access drivers, which were added in Service Pack 1 and are available for download at www.microsoft.com. Pay close attention to the installation instructions, which help you connect to the proper port and create "phantom" parallel and serial ports. You'll need to keep your notebook and the infrared network adapter reasonably close—10 feet or less—but within that range, connections should be fast and absolutely automatic.

Profiles in Hardware

My notebook does double duty as a desktop machine and I've thought about adding a docking station. Should I?
For anyone who has a notebook with a docking station or port replicator, the ability to create separate hardware profiles is the single most powerful reason to select Windows 95. On a Plug and Play notebook, this process is completely automatic and nearly foolproof. To add or configure hardware profiles on other notebooks, right-click on the My Computer icon, choose Properties, and select the Hardware Profiles tab. If Windows

---

Welcome to the Windows Briefcase

You can use the Windows Briefcase to help you organize and keep your documents up-to-date between two PCs.

There are four easy steps

1 Drag your important files into the Briefcase
2 Take the Briefcase with you as you travel by keeping it on your laptop computer or dragging it onto a floppy disk.
3 Make changes either to the files inside the Briefcase or to the original files
4 Click Update All on the Briefcase menu to bring your files up-to-date.

To learn more about how to use the Briefcase, look up Briefcase in the Help Index.

Finish

Not So Helpful: Each time you create a Briefcase, you'll see this plain help screen. Our advice: Don't try to use floppy-based Briefcases.

Current Work

File Edit View Briefcase Help

Current Work

Name	Sync Copy In	Status
Meeting with Front...	\\Ebolt-150\C\Current W...	Up-to-date
Moving estimates	\\Ultra\C\Data\Ed	Up-to-date
Letters	\\Ultra\C\Data\Ed	Up-to-date
Legal	\\Ultra\C\Data\Ed	Up-to-date
Crit3	\\Ultra\C\Data\Ed	Up-to-date

By Any Name: Use any name you like for a Briefcase, and move a Briefcase anywhere on your hard drive. Add sync copies of single files or entire folders.

The sync copy outside the Briefcase is up-to-date with the one in the Briefcase.

In Briefcase\Letters Unmodified 9/3/96 1.07 PM	✓	In \\Ultra\C\Data\... Unmodified 9/3/96 1.07 PM
	Up-to-date	

Split From Original   Find Original...

Extra Info: Properties sheets for objects in the Briefcase provide a wealth of useful information and include some handy buttons.

Update Current Work

The following files need to be updated. To change the update action, use the right mouse button to click the file you want to change.

	In Briefcase\Letters Deleted	✗ Delete	In \\Ultra\C\Data\E Unmodified 3/27/89 10:25 PM
'Monkton In'			
7-15-96 Letter to Steven Cust	In Briefcase\Letters New file 6/6/96 1:53 AM	⇒ Create	In \\Ultra\C\Data\E Does not exist
	C:\Windows\Desktop\Current Work\Letters		
8-31-95 Letter to Tibetan	In Briefcase\Letters Modified 6/6/96 1:55 AM	Skip (both changed)	In \\Ultra\C\Data\E Modified 6/6/96 1:59 AM

Update   Cancel

Up-to-Date: Move entire folders inside a Briefcase and Windows will automatically track new files you create or old ones you delete.

---

automatically detects the docking station, you should see configurations called Docked and Undocked. If all you see is a profile called Original Configuration, click on the Copy button to create a new profile based on the current hardware.

To manually add or remove device drivers from a configuration, select the Device Manager and click on the Properties button for each device you want to add or remove. On the General tab, make sure there's a check mark next to any configuration that should have the driver for that device loaded, and remove the check mark for any device that should be disabled. Have you set up DOS startup files for different configurations? Give your hardware profile the same name as your DOS multiconfiguration menu item (the long text in the

menu, not the short bracketed name in CONFIG.SYS), and Windows will load the proper real-mode drivers at startup. When you boot up, Windows will automatically detect and switch to the appropriate configuration if it can. If it's unable to determine which hardware profile to load, you'll be presented with a character-mode menu and asked to make a choice before the boot process continues.

Cable Ready?

Most of my working files are on my desktop PC. I'd like to use floppy disks and the new Briefcase utility to keep them in sync with my notebook. What's the easiest way?

Trust us: Don't bother using floppy-based Briefcases. Windows 95 has

some clever file-syncing smarts for a Briefcase you create on a floppy disk, but it has one fatal flaw: A floppy-based Briefcase cannot hold more than the capacity of the disk. If you can store all your working files in a mere 1.44MB, you don't need the headaches of the Briefcase. A much better alternative is to connect the notebook and desktop PCs using inexpensive Ethernet adapters and Windows' built-in networking. If that's too expensive or complex, we recommend using Direct Cable Connect (DCC) (look up the topic in Windows Help for step-by-step instructions). The only cost is a cable ($10 to $20 at the local PC store), and the time you spend getting DCC up and running will pay off handsomely once you see how easy it is to create and update a networked Briefcase.

NT Notebook No-no's

When it comes to mobile computing, Windows NT knows how to just say no. No, you don't get built-in power management. No, you won't be able to hot-swap your PC Cards. No, you can't unplug the notebook from its docking station without shutting down first. And no, the average notebook doesn't have nearly enough RAM or disk storage to run NT properly. If you absolutely must run Windows NT on a notebook, be prepared to sacrifice virtually all of Windows 95's usability improvements. Here's what to watch for.

Shuffling Cards

How extensive is Windows NT's support for PC cards?

As is true with almost every hardware decision involving NT, your best bet is to check Microsoft's official Hardware Compatibility List for Windows NT 4.0. There's a long list of compatible notebooks with PC Card slots, as well as matching modems, network adapters, hard drives, and other peripherals. But be prepared for serious usability headaches. For example, you'll

have to completely shut down and restart the system to swap a card. And because NT is not Plug and Play–aware, you'll have to disable all power management if you are using any PC Card devices.

Fits and Starts

Can a notebook owner create different startup profiles using Windows NT?

Yes, although the process is less intuitive and less powerful than the Windows 95 equivalent. Right-click on

the My Computer icon and choose the Properties menu, then select the Hardware Profiles tab. Windows NT creates a default profile when you install the operating system. Use the checkboxes on this tab to enable or disable network support, identify a docking station, or adjust video resolution and color depth. You'll be asked to choose from the list of hardware profiles at boot-up. Don't expect Windows NT to be able to discriminate between alternate configurations on its own.

Power Shortage

What sort of power management features will Windows NT 4.0 contain?

You might as well bring along a suitcase full of spare batteries or a very long extension cord if you expect to work on an NT-equipped

notebook while you're away from the office. There are no Plug and Play features in the operating system, so there's no way for Suspend/Resume messages to reach applications, PC Card peripherals, network connections, and other system components that might be affected by your decision to shut down unexpectedly. We expect notebook makers will add NT-aware power management to the next generation of portable PCs, but if yours is vintage 1996 or earlier you're likely to run out of juice much sooner than you'd like. Surprisingly, one of the most productive power-saving upgrades you can make to any notebook is extra RAM. When NT runs out of RAM, it begins swapping data to the hard disk, which consumes power at an alarming rate. You can avoid this process by upgrading to 32MB or more.

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Getting Connected

Networks complicate everything. What seems simple on a single PC becomes mind-numbingly complex when you add in network servers, clients, protocols, adapters, and services. Compared with its predecessors, Windows 95's networking is almost absurdly easy. But that doesn't mean we can't find ways to streamline the process of getting connected and staying connected. It all starts in the Network Neighborhood, where every available network resource—file servers, printers, fax modems, and more—is organized. What's on the other end of the wire? Could be just about anything, from a NetWare server to another PC running Windows.

UNC Names

I'm tired of browsing through the Network Neighborhood to find files and folders on network servers, and I'm out of letters to use for mapped drives. What do I do now?

Mapping drives to fixed letters is an inelegant solution to a complex problem—after all, how are you supposed to remember that R: is where you've stored the 1998 budget forecasts? Besides, if you have a CD-ROM changer and a corporate campus full of servers, you'll reach Z: before you know it. So use universal naming convention (UNC) names instead. This syntax allows you to refer to any network location (including your own PC) using a common syntax: *server**sharename**filename*. (On a Novell NetWare network, replace the *sharename* entry with the volume name.) UNC names are legal in shortcuts, in the Filename line within dialog boxes for 32-bit applications, in the Run dialog box, or anywhere a file or printer's name is required.

Single Log-in

Each time I log in to Windows, I'm asked to enter several passwords. How can I log in automatically?

On corporate networks, starting up Windows 95 may require multiple log-ins. One password prompt logs you in to Windows and unlocks your encrypted password-caching file (stored on your hard disk as *username*.pwl).

If you connect to one or more NetWare servers or Windows NT domains using a different user name and password, Windows will pop up separate dialog boxes for them as well. If this string of dialog boxes bothers you, the simple solution is to make the user name and password for your Windows log-in the same as those for your other servers. First, open the Control Panel, double-click on the Network icon, and set your Primary Network Logon to Windows Logon. Click on OK to return to the Control Panel, then open the Passwords applet and change your Windows password to match the network password. The next time you start up, you'll bypass the network log-in dialog box completely. For other password-protected services, check the box labeled Save This Password in Your Password List. A caveat: Consolidating passwords makes your PC and your corporate network less secure, because any intruder who can get past that initial log-in can use your account without restrictions. Also, this solution may not be practical if your network administrator has set up the server software to require that you change your password at regular intervals.

Nets from Afar

I run Windows 95 at work and at home. Is there a way to dial into the desktop PC in my office and connect to files and folders on my company's network?

It might be easy or it might be impossible. Whether you can get from your own PC onto your company's network depends on how the network is configured. Start by installing the Dial-Up Networking option (from the Windows 95 CD-ROM) on both computers. Next, install the Dial-Up Networking Server (found on the Plus CD-ROM) on the computer you plan to dial into. Open the Control Panel Networks applet on the

Quick Results: Password Pointers

The modest security features in Windows 95 would barely get a dismissive shrug from Tom Clancy, and with good reason. This operating system's password protection scheme is designed for the convenience of users more than for rock-ribbed secrecy. Still, as long as you're aware of its limitations, there are a few things you can do to keep your data fairly safe.

- **Password Cache** Install the password caching update in Service Pack 1 (also available as a downloadable module from Microsoft's Web site at www.microsoft.com/windows/software/updates.htm). This patch makes it much harder to crack the PWL files where passwords are stored.

- **Think Long** Make your password long enough to resist random guessing by a stranger—at least eight characters.

- **Welcome Obscurity** Avoid the obvious—don't use your birthday or the names of your kids or pets as a password.

- **Alphanumeric** Mix numbers, letters, and symbols; nonsensical combinations are much harder to guess. Unfortunately, Windows 95 passwords are not case-sensitive.

- **Physical Fitness** Don't forget physical security. A strong lock is more effective than any password.

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FILM, AND STORED ON
THE BEST DISC DRIVES.

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AND NOW THAT SHE ARCHIVES ALL HER SHOTS
DIGITALLY, SHE NEEDS TO KNOW THEY'RE ALWAYS SAFE.
SO SHE INSISTS ON SEAGATE DISC DRIVES.
SHE COULDN'T PICTURE WORKING ANY OTHER WAY.
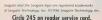
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server and make sure that a file and printer sharing service is installed and enabled. Then look on the Identification tab and verify that the workgroup name is the same on the dial-up client and the server. Set the appropriate shares, permissions, and passwords on the host machine. Most important, open the Network Properties sheet and make certain that identical protocols are bound to the Dial-Up Adapter on both machines. Use only NetBEUI or IPX/SPX–compatible protocols, which can be routed from the network to the remote client. Don't use TCP/IP exclusively, because that protocol isn't routable; you'll have no trouble seeing files and folders stored locally on the machine you're dialing into, but the network will remain invisible to the dial-up client.

Command Performances

After years of using NetWare command-line utilities, I'm confused by the graphical interface of the Windows NetWare client. What does it all mean?

Actually, the context menus available when you right-click on the Network Neighborhood or a NetWare file server icon are refreshingly familiar. Who Am I specifies whether you're logged in to the server or attached to the server; if you're logged in and the computer is attached, the resulting display includes your user name. Log Out logs you off the selected server. Attach As brings up a dialog box from which you can connect to a server by using a user name and password other than the one used to log

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server and make sure that a file and printer sharing service is installed and enabled. Then look on the Identification tab and verify that the workgroup name is the same on the dial-up client and the server. Set the appropriate shares, permissions, and passwords on the host machine. Most important, open the Network Properties sheet and make certain that identical protocols are bound to the Dial-Up Adapter on both machines. Use only NetBEUI or IPX/SPX-compatible protocols, which can be routed from the network to the remote client. Don't use TCP/IP exclusively, because that protocol isn't routable; you'll have no trouble seeing files and folders stored locally on the machine you're dialing into, but the network will remain invisible to the dial-up client.

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Security Selection: Choosing user level access lets you tighten access to files and printers so only certain individuals and groups can use them.

Pick a User: Grant or deny access to any user or group with an account on the NetWare server you specify.

NetWare-Ready: Even if you're not a NetWare administrator, install this File and Printer Sharing Service along with the NetWare client software.

Tighten Up: Fine-tune access settings for any user or group, using the same options available from a NetWare command line.

---

in to the network—this command is handy when you want to attach to a server as a guest.

Forgotten Passwords

Sometimes Windows remembers my passwords, and sometimes it doesn't. What's *that* all about?

By default, the first log-in dialog box you see at startup allows you to unlock your password cache file. If you press Esc instead of entering the correct password, Windows leaves the password cache locked. From that point on, whenever you encounter a password-protected resource—a Web page that requires authentication, say, or a Net-Ware server—you'll have to type the password, and you won't be allowed to save it. The simple solution is to click on

Start, Shut Down, then choose Close All Programs and Log On as a Different User. If you've left your password blank, press Enter rather than Esc here and you won't see this dialog box again.

Hold the Java, Please

Computer security experts are rightly concerned that Java applications can cause security problems running across networks. Is there any way to disable Java in Windows?

Although Microsoft has announced its plans to embed support for Java in a future version of Windows, there's no such feature in any current version of Windows. To activate a Java program, you need a Java-ready Web browser. Both of today's top browsers, Netscape Navigator and Microsoft's Internet

Explorer, allow you to disable Java.

Your more immediate concern is to stop would-be intruders from snooping through the files on your hard disk and on your company's network. That's a distinct possibility if you haven't carefully configured your file-sharing options. At a minimum, any file sharing services should be password protected. If you're on a NetWare network, consider using NetWare File and Printer Sharing services for its more robust access control. And if you have an Internet connection, by all means make sure that file sharing isn't bound to the TCP/IP protocol. Windows 95 performs this task automatically: Double-click on the Internet Control Panel applet, then click on the Connection tab and check the Perform System Security Check option.

Networking with NT

With Windows NT, networking isn't an afterthought; it's the whole point. NT's range of options is dizzying, extending from simple resource sharing to complex features that let you create a complete network firewall. With the User Manager, administrators can define comprehensive network options on a user-by-user basis; these take effect every time a user logs in.

Fair Share

How is sharing different between Windows 95 and NT?

Using Windows NT, when you mark a disk, folder, or drive as shareable, you have the option to adjust permissions with incredible precision, based on the user name of the person attempting access. When you log in to Windows 95, that establishes your identity—and your file-access rights—for the entire session. To connect to a network resource using a different user name, like Guest, you have to close all running programs, log off, and then log back in.

Windows NT, on the other hand, includes a Connect As option that lets you connect to a network resource using a different name.

Higher Security

What other security options does Windows NT allow?

All of Windows NT's security options are accessible by clicking on the Security tab of the properties sheet for a file, folder, or drive. Of course, you can assign an extensive array of access permissions for individuals and predefined groups, including Power Users, Users, and the catchall Everyone group.

Other interesting security features include the ability to audit attempts—successful or otherwise—to access objects. Using this feature, an administrator can tell NT to keep a security log and note whenever a user attempts to poke around in folders where he or she shouldn't be. There's also the concept of "ownership," which allows ordinary users (without Administrator privileges) to control access to files they've created. By transferring ownership, you can let another user manage permissions.

Individual users can't edit permissions for other users and groups, but they can set permissions for files they own, which allows them to maintain security on individual files. Users may be shocked when they learn that administrators can take ownership of a file and bypass this security, but there are good reasons for this design: If an

employee is fired, for example, administrators may need access to working files for a crucial project. And because the act of taking ownership is irreversible, employees are certain to discover that a file has been accessed.

Server Lite

Can I use the workstation version of Windows NT 4.0 as a server?

Yes. Windows NT Workstation makes a capable server for certain light-duty applications. There are limits, though: You can't have more than ten simultaneous connections, for example, and the workstation version can't route IP packets on an internal network the way the server version can. Probably the best server-like use of NT Workstation is as a peer Web server using the Personal Web Services option.

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For those of you still struggling to get cranky computers working well in the physical world, the leap to cyberspace adds an unwelcome extra layer of tweaking and grumbling. Take it from us, though: Your efforts to get a fast, smooth Internet connection will bring a greater return on invested frustration than just about anything else you can do with a PC. The easiest way to get Windows 95 talking with the Internet is through the Microsoft Internet Jumpstart Kit, which includes an Internet Setup Wizard and the Internet Explorer Web browser. The Internet Jumpstart Kit is available as part of the Microsoft Plus CD-ROM; if you have access to the Web already, you can download the kit free of charge from www.microsoft.com/windows.

Bad Winsock

I installed a new Internet package and now, every time I try to use an old Internet application, I get an error message. What's wrong?
Do the messages warn you about an "Invalid Winsock" or "Incorrect version of Winsock?" Chances are good that the new Internet package clobbered the Windows Sockets library, WINSOCK.DLL. That's bad news, because this file, which is found in your Windows folder, is what lets 16-bit Windows programs open and close Net connections. (WSOCK32.DLL handles that chore for 32-bit apps.)

To fix the problem, look in the new package's documentation to see if the installer renames any old WINSOCK.DLL file that it may find. (For example, Windows 95's installer renames WINSOCK.DLL to WINSOCK.OLD, and leaves it in the Windows folder.) If you find a renamed file, move it to the old Internet software's folder and rename it back to WINSOCK.DLL. Chances are good that the error messages will disappear. And if you need a fresh copy of the Windows 95 WINSOCK.DLL, you can find one in your Windows\Sysbckup folder.

Finding Support

How can I reach Microsoft's online support forums, now that they're no longer available on CompuServe?
Microsoft moved all its online support to the Internet this past April. You'll find the support newsgroups in the microsoft.public hierarchy on the Web server msnews.microsoft.com.

Every Microsoft application, from Access to Works, has at least one newsgroup, and many have a slew of subcategories. For example, if Excel is giving you fits, you can post your problems in microsoft.public.excel.crashesGPFs.
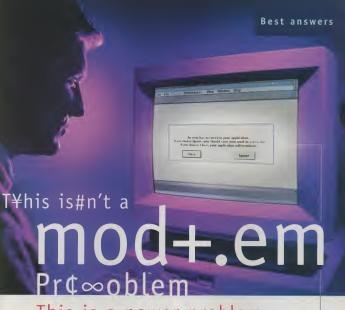
There are at least ten busy newsgroups devoted exclusively to Windows 95. If you don't want to install a dedicated newsreader, any up-to-date Web browser will let you work with these and other newsgroups.

With Microsoft Internet Explorer 2.0, choose View, Options, go to the News tab, then check Use Internet Explorer to read Internet Newsgroups. Type msnews.microsoft.com in the News Server Address spot, uncheck the box labeled This Server Requires Authorization, and click on OK. Choose Go, Read Newsgroups to begin reading the news. With Netscape Navigator 2.x, choose Window, Netscape News to open a newsreader; then click on File, Open News Host, and type msnews.microsoft.com.

Internet Mail and News

Microsoft recommends using its Internet Mail and News program to access support newsgroups. Is it worth the effort?
Not necessarily. Microsoft created the Internet Mail and News reader program (IMN) as a small, easy-to-install, simple alternative to using Internet Explorer for Usenet newsgroup access and the Exchange Inbox for Internet mail. (Internet Explorer 2.0's newsgroup capabilities plumb new depths in clunky user interface design, so Microsoft released IMN fast when it switched to Net-only support.) In fact, just about any Usenet newsreader, including Forté's superb Free Agent, works with the microsoft.public groups. Internet software changes as fast as the weather in Seattle, but as of this writing IMN is still available only in beta-test versions. If you're happy with your current Internet mail package and

Quick Results: Web Browser Tricks

Most Web surfers have spent enough time watching hourglasses to build their own atomic clock. You may not be able to do much about bottlenecks on the Internet's backbone, but there are a few things you can do to speed up things on your end of the line.

• **No http:// Necessary** Both Netscape Navigator and Internet Explorer are smart enough to add an http:// to the beginning of any Web URL you type in the Address or Location box.

• **Choose Your ISP** If you start Netscape Navigator or Internet Explorer and you've chosen Microsoft Network as your default Internet service provider (ISP), Windows brings up the Microsoft Network sign-on screen. To connect to a different ISP, establish the telephone connection *before* launching the browser. To quick-start Netscape or Internet Explorer while you're already connected to Microsoft Network, don't log off—just launch.

• **Sincerest Form of Flattery** Regardless of which browser you use, you can save an entire Web page by clicking on File, Save As. To save a single graphic image, right-click on the image.

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newsreader, there's no compelling reason to change to IMN. But given the general improvements Microsoft has made in usability and performance in this program, it's worth checking every so often to see what's new with IMN.

Changing Default Browser

When I start Navigator, it says "Netscape is no longer registered to handle Internet Shortcuts." When I start Internet Explorer, it says "Internet Explorer is not currently your default browser." Why?

It all boils down to a battle over online turf: Which application will spring to life when you double-click on an HTML,

HTML, or XBM (a MIME graphic format) file? When Netscape Navigator starts, it checks to see if the Registry associates Netscape (via the Netscape-Markup class) with the HTM extension. If Navigator finds that the HTM extension points somewhere else, and you give your permission, Navigator changes the Registry to associate Navigator with HTM, HTML, and XBM. Navigator also changes the Open actions for

the http, https, ftp, gopher, news, and snews classes so they start up Netscape as well. But when Internet Explorer starts, it checks the HTM Registry entry (via the htmlfile class) to point to Internet Explorer. If you prefer one browser, choose it as your default, then tell the other browser to stop checking by clicking in the appropriate box in the start-up dialog box.

AutoDial: In the Control Panel's Internet applet, set up your browser to automatically disconnect when it isn't in use. Then set AutoDial to connect when you start using your browser again.

Keep Tabs: Any time you're online, double-clicking on the modem icon in the System Tray (located on the right edge of the Taskbar) brings up a dialog box telling you how long you've been connected.

Max Speed: To make sure Windows doesn't stand in the way of your modem's best performance, use the Control Panel's Modems applet, Properties button, to set the Maximum Speed as high as it will go.

Remember: Although it won't make your online session go any faster, you can save lots of time by having your various communications programs remember your password, usually through a checkbox on the log-on screen.

Anonymous FTP

Is there a way to get File Transfer Protocol (FTP) to work by typing in an address in Netscape Navigator 2.0?

In general, you can use a Web browser for FTP access by typing in an address that looks like this: ftp://username:password@server_name. Most FTP sites (the so-called anonymous FTP sites) request that you enter your user name as anonymous and use your e-mail address in the password box. If you follow this advice literally and type, say, ftp://anonymous:woody@wopr.com@ftp.msn.net, in the Location box, Navigator gets confused by the two @ signs and can't locate the site. The solution is to let Navigator prompt you for a password by typing in ftp://anonymous@server_name. When Navigator prompts you for a password, you just type in

your e-mail address, including the @ sign and server name. Internet Explorer 2.0 doesn't have this problem: It can deal correctly with the second @ sign.

Exchange Basics

I've received a message in the Exchange Inbox. Now how do I add the sender's address to my address book?

The Exchange Inbox is enormously powerful and sometimes equally frustrating. It handles Internet mail, faxes, CompuServe mail (use SETUP.EXE in the Windows 95 CD's \Drivers\Other\Exchange\Compusrv folder), messages sent via Microsoft Network, and MSMail—so hang in there; it's worth learning. Regardless of where the message came from, you can right-click on any name in the From, To, or CC boxes and select

Add to Personal Address Book. It's usually a good idea to immediately double-check the address book to make sure it was updated the way you wanted. (For example, the sender of an Internet message that comes in through CompuServe will be posted as a CompuServe address.)

For now, you're out of luck if you want to export or import names and other personal data from an Exchange address book. But that should change toward the end of this year when Microsoft releases a successor to the Exchange client called Outlook. This all-in-one utility will combine the information management and scheduling smarts of Schedule+ with the e-mail muscle of the Exchange Inbox. And you can bet that there will be a foolproof way to move all those names and addresses into Outlook.

NT Hits the Net

Windows NT is a security-conscious operating system, so it's not surprising that its TCP/IP features are far more complex than those found in Windows 95. Enabling security in this environment isn't a job for amateurs. If you want to build a firewall between your Windows NT systems and the rest of the world, make sure you get expert help.

Dial on Demand

Can Windows NT automatically dial an Internet service provider on demand?

Microsoft has greatly improved the process for setting up Dial-Up Networking (DUN) connections in Windows NT 4.0. You'll find Windows NT's DUN folder in the same place that Windows 95 stores it (Start\Programs\Accessories), but the interface is dramatically different. The New button launches a wizard that helps set up DUN connections. Click on the More drop-down list and choose User

preferences. From this dialog box you can control which locations allow autodial (notebook users might want to turn it off when on the road), the number of redial attempts, the idle time to wait before closing the connection, as well as other settings. Click on the Appearance tab to tell Windows NT whether you want to be prompted before automatically dialing.

Security Alert

Where are NT's Internet security options hidden?

If you're running the

workstation edition of Windows NT 4.0, there are two places to look for Internet security settings. For networks that use a proxy server to control the information flow between network clients and the Net at large, try the Internet applet in the Control Panel, which lets you specify the server's name or Internet Protocol address. To tightly restrict access to a given system, you'll need to find a deeply buried dialog box: Start with the Control Panel's Network applet, then click on the Protocols tab. Select TCP/IP, then click on the Properties button, go to the IP Address tab, and click on the Advanced button. Make sure the Enable Security box is checked, then click on Configure. The resulting dialog box lets you restrict access to

specific Transmission Control Protocol and User Datagram Protocol ports—and if you don't know what those ports are, you have no business rooting around there.

Network Exchange

Can the Windows NT Exchange client communicate with Microsoft Network?

Not yet. It can't send and receive faxes, either. Both features are well supported in the Windows 95 version of Microsoft Exchange, but Microsoft says these features won't be available for NT users until a few months after the official release of Windows NT 4.0. Check the Microsoft Web site at www.microsoft.com for news on these and other Exchange and Windows NT 4.0 updates.

When **Bad** Things Happen

Sometimes you'll want to lift the hood on Windows 95 to eke out all the performance you paid for. Other times you'll be forced to poke around just to get things working. Fortunately, you won't need a mechanic to deal with most of the settings. You will need a map and a flashlight, though, because Windows 95's online documentation isn't detailed, and many of the most useful tweaks are buried several layers deep. For this year's Superguide, we assembled a collection of our favorite troubleshooting tips, including several you've never read anywhere else. If you can't find an answer to your specific problem here, remember that a library of information on Windows 95 problems and solutions resides in the voluminous and eminently searchable Microsoft Knowledge Base, just a click away at www.microsoft.com/kb.

Quick Tune-up

I just upgraded from Windows 3.1 to Windows 95. How can I tune performance?

By and large, the Windows 95 installer does a remarkable job of optimizing system performance. In a few cases, though, some human intervention is necessary.

Start by right-clicking on the My Computer icon and selecting the Performance tab. If the last line says your System is Configured for Optimal Performance, the installer was able to get rid of 16-bit drivers that slow down your system. On the other hand, if there's a list of drivers at the bottom of the box, try renaming your AUTOEXEC.BAT and CONFIG.SYS files and rebooting. In many cases that will eliminate the old drivers, and your system will run fine. (But if it doesn't, reboot, hit F8 as soon as you see the Starting Windows 95 message, pick MS-DOS Mode, and rename the files back to AUTOEXEC.BAT and CONFIG.SYS, and then reboot again.)

While you're looking at the Performance tab, click on File System and make sure Windows 95 correctly identified the speed of your CD-ROM drive and that the supplemental cache is set to Large.

Built-in Help

I'm having serious problems with my laser printer (or network card, or joystick, or modem, or memory, or whatever). Can Windows 95 help?

Most of the garden-variety hardware problems you

might encounter with Windows 95 are easy to diagnose and solve using one of the operating system's 20 Troubleshooters—if you know where to find them.

When your hardware isn't working properly, click on the Start button, then Help. Switch to the Index tab and type *trouble*. Each of the listed Troubleshooters step you through a fairly extensive list of things to check and approaches to try.

Often you'll find that some minor variation on the steps given in a Troubleshooter will solve your problem, so don't be afraid to modify the rote steps. Just make sure you take good notes, and if the approach you dream up doesn't work, undo anything you've changed.

Manual Defrag

Is there an easy way to periodically scan and defragment hard drives?

The Windows 95 Plus Pack includes a System Agent that automatically schedules ScanDisk and Defrag, the Windows 95 utilities that scan, repair, and defragment hard drives. If you prefer manually launching those programs (or if you don't have the Plus Pack), use Notepad to create a file called SCANFRAG.BAT that includes the following text:

```
Start /w Scandskw /all /n

Start Defrag /all /f /noprompt
```

The first line starts ScanDisk, tells it to scan all local, nonremovable hard drives, and to run automatically (the *n* is for noninteractive mode). The second line starts the Windows 95 defragmenter, tells it to defrag all local, nonremovable hard drives, to defrag both files and free space, and to run unattended. Whenever you anticipate being away from your computer for a sufficiently long time (an hour or so should be enough), simply double-click on SCANFRAG.BAT.

Quick Results: Help on Help

The Windows 95 Help system steps you through some very hairy procedures—if you can find the right topic.

• **Maximize Search Capabilities** When Windows 95 first encounters a Help file, it builds an index. If you click on Minimize Database Size (recommended), you'll save a bit of disk space— say, 1MB on the Windows 95 Help file—but you'll stunt your searching options, compared with the Maximize Search Capabilities selection.

• **Phrase Search** Choosing Maximize Search Capabilities lets you search for entire phrases, instead of individual words. A phrase search on *print options*, for example, produces a Help article specific to the phrase; searching on the words *print* and *options* finds dozens—many unrelated to the phrase. To force phrase searching, start Help, click on Find, Options, and pick Search for Topics Containing the Words you Typed in Exact Order.

• **Windows Resource Kit** It's available, free, in Help file format, by copying the \ADMIN\RESKIT\HELPFILE\WIN95RK.HLP file from the Windows 95 CD, or from the Web at www.microsoft.com/windows/software/reskit.htm.

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Bringing Back Bad Clusters

An old disk-scanning program marked a large number of clusters as bad. How can I get those clusters back?

Normally ScanDisk skips over clusters that are marked bad. There are several good reasons for this default behavior: A very sensitive disk-scanning program may have identified a marginal cluster, some programs protect themselves by identifying their own clusters as bad, or ScanDisk may identify a cluster as bad one day then be unable to find anything wrong with it the next. If you know for a fact that rechecking for bad clusters won't clobber any of the programs on

your disk, you can force ScanDisk to reexamine every cluster. Use Regedit (see "The Registry: Safety Is Job #1," page 131) to edit the HKEY_CUR-RENT_USER\Software\Microsoft\Windows\CurrentVersion\Applets\Check Drive key. The last two bytes of the Settings value should be 04. For example, if Settings is B1 03 00 00, change it to B1 03 00 04. Then start ScanDisk.

Keyboard Remap

Can I make a traditional keyboard simulate the new Window and Menu keys found on Windows 95–specific keyboards?
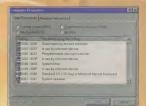
Microsoft Windows 95's kernel programmers put together a suite of toys that remap the Alt, Caps Lock, Ctrl, and

---

GUIDED TOUR   DEVICE MANAGER: **LOOK INSIDE** YOUR SYSTEM

Basic Layout: Windows 95's most valuable utility is hidden in the Control Panel's System applet. Bring up the Device Manager tab to see the physical layout of your PC's innards.

I/O Addresses: Click on the Input/Output or Direct Memory Access buttons to see additional information. Utilities capable of showing you this much detail used to cost $100 or more—and were rarely accurate.

IRQ City: To see a complete, accurate list of all assigned Interrupt Requests, highlight the Computer icon in the System Properties box, and click on the Properties button.

Connection Insight: Click on the View Devices by Connection button to see the logical interconnection between the parts of your PC. A malfunctioning device will show an exclamation point.

Shift keys. Patterned after Microsoft's PowerToys add-on, these Kernel Toys are unsupported extensions to Windows 95 created by the people who built Windows 95. In addition to this Keyboard remapper—which installs itself as a Remap tab on the Keyboard Control Panel applet—other Kernel Toys show you a full breakdown of the location of virtual device drivers (or VxDs) in conventional memory (useful if you're struggling with Insufficient Memory problems running DOS programs under Windows 95), a DOS Mode Configuration Wizard (which changes the Registry entries affecting DOS programs' Properties/Program/Advanced/ MS-DOS Mode/Configuration settings), and an editor for changing Registry entries that are associated with the standard Windows Time Zone Editor. You can download the latest version from www.microsoft.com/windows/ software/krnltoy.htm.

Forgotten Password

I've lost my Windows 95 log-on password. What now?

Without your log-on password, all the personal settings you've established in Windows 95 are effectively out of your reach. Those settings run the gamut, from Desktop appearance preferences to speaker volume levels to file locations. You can retrieve all the settings associated with the user name you normally enter at log-on time, but doing so will also permanently zap all the passwords Windows 95 has stored away for you—passwords for file sharing, online services, and more. To clear all the passwords for your user name, get your PC running by hook or by crook: If you can boot to Windows 95 and hit the Escape key when you see the log-on screen, fine; if not, just boot with your emergency disk. Next, look in the \Windows folder for a file that

matches your user name and ends with the extension PWL. For example, if your user name is Woody, look for \Windows\Woody.pwl. The file may be marked Hidden or System, so make sure Explorer is showing all files (in the View/Options/View tab); or, if you're stumbling around with DOS, type the command: Attrib -h -s C:\ Windows\Woody.pwl to make it visible. Delete the file and reboot.

When the log-on screen comes up, use your old user name and any new password you like. If you install the Windows 95 Service Pack 1, you may encounter this problem in a different form. The Service Pack 1 includes a replacement for the password-encryption code that significantly beefs up security for your saved passwords. Unfortunately, it also renders your password cache unusable. If you encounter these symptoms, just delete the PWL file and start fresh.

NT's Missing Links

Windows NT 4.0, despite its adoption of the Windows 95 user interface, is user-hostile when it comes to troubleshooting. The two biggest problems are a lack of drivers for hardware devices and the absence of Plug and Play code. The first problem should vanish in a hurry. But Windows NT-security issues mean the NT flavor of Plug and Play is years away.

Plug and Play

Do Plug and Play peripherals work with Windows NT 4.0?

Some do, others don't. Because Windows NT doesn't support any Plug and Play features directly, you'll have to ask the manufacturer for an NT-specific driver that supports the device. In the case of best-selling products like network adapters and sound cards, this may not be as hard as you think. For example, Creative Labs released downloadable Windows NT drivers for its

entire line of sound cards while Windows NT 4.0 was still being beta tested. Some Plug and Play peripherals include a command-line utility that allows you to manually configure the card's settings.

Getting Resourceful

Is there an easy way to inventory IRQs and other system resources under Windows NT 4.0?

One of the most welcomed features in Windows 95 is its Device Manager, which allows you to inspect and

allocate your system at a glance. Unfortunately, the Plug and Play code that makes that wizardry possible isn't available under Windows NT—and probably won't be until at least 1998. Your best bet for tracking system resources is decidedly low-tech: Grab a pencil and paper, and jot down all the settings each time you install a new device. Keep this list (and any associated documentation for relevant switches and jumpers) in a handy place near your computer.

Utility Hunt

Are there NT versions of ScanDisk and Defrag?

Surprisingly, Microsoft has not included a disk defragmenter with the first release of Windows NT 4.0.

Instead, look for third-party solutions like Executive Software's Diskeeper ($125 workstation, $399 server, estimated street prices). The first release of Symantec's Norton NT Tools 1.0 does not include any disk utilities; however, this longtime leader in utility software has promised an update by the end of this year.

Meanwhile, Windows NT does include a built-in disk diagnostic program: You can access it by using the disk-checking option that is on the properties sheet for every local hard disk. (You can also run CHKDSK from the command line or use the Disk Administrator tool.) Naturally, you won't be allowed to run the disk-checking tool unless you've logged on with Administrator privileges.

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Feel the rush with a high-speed or multidisc drive

Are you tired of twitchy animation and choppy sound? Is your video running in slow motion? Then it's time to supercharge all your applications with the latest generation of speedy CD-ROM drives.

Upgrade your drive and you'll get smoother full-screen video, faster application load times, and lightening-quick database searches. Make the extra investment in a CD-ROM changer and you'll save time by having all your favorite discs at your fingertips.

Best of all, you don't have to spend a fortune. Even the top eight-speed single-disc drives can be had for less than $200. And just $300 will get you a quad-speed five-disc changer.

Speed on Tap: Get sizzling performance with the Teac CD-58E (top), or multidisc convenience with the Panasonic Big 5 changer (bottom).

PCComputing
BEST

BY MARTY JEROME

PHOTOGRAPHS BY ERNIE FRIEDLANDER

Reviews: The Fastest Drives and Changers

For years CD-ROM drives and the Windows hourglass have gone hand in hand. Even the best single- and double-speed drives left users drumming their fingers while data trickled from the disc.

Quad-speed drives are today's entry point, especially now that business applications regularly feature 3-D graphics, full-motion video, and animation. But why stop at quad-speed? When loading big apps or accessing large databases, a six-speed or eight-speed drive is even better. And if it's convenience you're after, a multidisc changer is essential. We put nine of the fastest CD-ROM drives and five multidisc CD changers to the test and found that it's time to rethink old prejudices about CD-ROM drive performance.

Supersonic Spin Our tests kicked up a few surprises. For starters, a bigger drive-speed number doesn't guarantee faster performance. A drive's speed indicates how many times faster the spindle spins than on a single-speed drive. A higher spindle speed means faster throughput, right? That's true. Even so, the Pinnacle Micro 10Xtreme drive—the first ten-speed drive to enter our labs—delivered only middling overall performance. In

Caddy Shack: The Plextor 8PleX is the only drive we tested that uses a caddy instead of a handier tray to load discs.
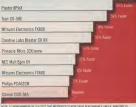
fact, every six-speed drive we tested posted faster access times than the 10Xtreme. Access times are more important than throughput speeds when you need to grab small chunks of information, instead of one large file, off a disc. The $220 10Xtreme does have one bright spot: It uses the least amount of CPU processing power, which helps it out during heavy PC multitasking.

Teac offers the best value of the bunch. Bargain-priced at only $199, the eight-speed Teac CD-58E came in second only to the Plextor 8PleX in overall performance, and its Enhanced IDE (EIDE) interface made for nearly idiot-proof installation.

If you prefer peak performance, check out the Plextor 8PleX. Two factors nudged it to the top of the speed list: It logged the fastest access times in the roundup and it has a SCSI interface. That's a winning combo if you're willing to pony up $380 for the privilege. The steep price includes an Adaptec AHA-2940 PCI SCSI controller and Plextor Manager software, which eases the pain of installing a SCSI device.

Mitsumi Electronics' eight-speed FX800 deserves

Performance: CD-ROM Drives

Plextor 8PleX	69% Faster
Teac CD-58E	56% Faster
Mitsumi Electronics FX800	38% Faster
Creative Labs Blaster CD 8X	35% Faster
Pinnacle Micro 10Xtreme	14% Faster
NEC MultiSpin 6V	11% Faster
Mitsumi Electronics FX600	2% Faster
Philips PCA62CR	2% Faster
Chinon COS-585	Baseline

NOTE: CD-ROM WINMARK 96 IS A TEST THAT MEASURES CD-ROM DRIVE PERFORMANCE UNDER WINDOWS 95.

Eight Is Enough: A fast access time helped the Plextor 8PleX outperform even a ten-speed drive.

Time Line: The Evolution of Optical Storage Technology

Philips Electronics unveils a prototype of the **first CD-ROM drive.**

Sony and Philips introduce the **first CD-ROM drives for PCs.** The drives retail for about $700 and feature 650MB of storage, 550ms access times, and 150Kbps data-transfer rates.

Double-speed CD-ROM drives, which read data at twice the rate of a single-speed drive, make their debut. Meanwhile, Pioneer introduces the **first multidisc CD-ROM changer.**

The first affordable **CD-recordable drives** hit the market.

| 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 |

an honorable mention in the performance category—it ranked third in our tests. At $199, it costs only $50 more than the company's six-speed FX600, yet it was 30 percent faster.

In fact, our tests indicate that when data access and application load times count, an eight-speed drive is the way to go. However, there are certainly exceptions to the rule. The $199 eight-speed Chinon CDS-585, for instance, delivered the worst performance scores and one of the slowest access times of the lot. But in general you can expect an eight-speed drive to perform at least 20 percent faster than a comparable six-speed drive—sometimes much more—for around $100 extra. Given the growing performance demands of business CD-ROMs, the extra speed is worth every penny.

CD Swappers If you use a database that spans multiple discs, or if you have several CD-ROMs that you need to access all the time, consider a multidisc CD-ROM changer. Changers don't deliver the performance of single-disc drives yet, but they give you unparalleled convenience. Thanks to recent price drops, relief from CD swapping can be yours for a song. The three internal changers in this roundup range from $99 to $299. Both seven-disc external changers cost only $349.

The Panasonic Big 5 changer takes

Quick Switch: Each tray in the Panasonic Big 5 disc changer has its own front-panel eject button.

Performance: Multidisc Changers

Panasonic Big 5	21% Faster
NEC MultiSpin 4x4	19% Faster
Alps 4X Internal Changer	17% Faster
Smart and Friendly CDJ 7004	1% Faster
NEC MultiSpin 4Xc	Baseline

NOTE: CD-ROM WINMARK 96 IS A TEST THAT MEASURES CD-ROM DRIVE PERFORMANCE UNDER WINDOWS 95.
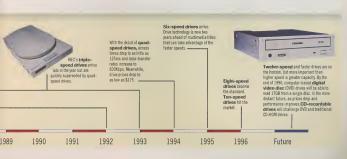
Get Up and Go: The easy-to-use Panasonic Big 5 CD-ROM changer edged out the competition.

top honors among internal changers for its winning performance and five-disc capacity. We also like the accommodating, caddyless design that provides each tray with its own eject button. The bundled SmartCD Manager utility lets you assign each tray its own drive letter—or you can simply bundle all five as drive D:. At $299, the Big 5 may be the most expensive internal changer we examined, but it's also the most capable.

The four-disc Alps 4X Internal Changer is a veritable bargain by comparison. It performed almost as well as the Panasonic Big 5, and at $250 it costs $49 less. Its flimsy magazine design could use some improvement, but if you're looking for a fast, inexpensive changer this is your ticket. If you want a bargain with even better overall performance, look to NEC's $99 MultiSpin 4x4. It will get to your data fast, and, like the Big 5, its caddyless design makes adding and removing discs a breeze.

As big seven-disc changers go, the NEC MultiSpin 4Xc takes the prize. It offers easy-as-pie installation and reasonable performance for $349. The Smart and Friendly CDJ 7004 is similar in design and price to the MultiSpin 4Xc. But while it's a bit faster than the MultiSpin 4Xc, it's not as easy to install.

NEC's **triple-speed drives** arrive late in the year but are quickly superseded by quad-speed drives.

With the debut of **quad-speed drives**, access times drop to as little as 125ms and data-transfer rates increase to 600Kbps. Meanwhile, drive prices drop to as low as $175.

Six-speed drives arrive. Drive technology is now two years ahead of multimedia titles that can take advantage of the faster speeds.

Eight-speed drives become the standard. **Ten-speed drives** hit the market.

Twelve-speed and faster drives are on the horizon, but more important than higher speed is greater capacity. By the end of 1996, computer-based **digital video discs** (DVD) drives will be able to read 17GB from a single disc. In the more distant future, as prices drop and performance improves, **CD-recordable drives** will challenge DVD and traditional CD-ROM drives.

1989	1990	1991	1992	1993	1994	1995	1996	Future

Top CD-ROM Drives and Changers

CD-ROM Drives	Price*	Speed	Interface Card?	Access Time	Pros	Cons	Verdict
Teac CD-58E (213) 726-0303 *Reader Service No. 735*	$199	8X	Yes	124ms	High speed at a buy-me-now price.	Not as fast as the Plextor 8PleX.	★★★★★ Superb performance for the dollar.
Mitsumi Electronics FX800 (800) 648-7864 *Reader Service No. 736*	$199	8X	No	254ms	Good performance; reasonable price.	The Teac CD-58E is 20 percent faster for the same price.	★★★★ A good all-around value.
Plextor 8PleX (800) 475-3986 *Reader Service No. 737*	$380	8X	Yes	120ms	Fastest drive you'll find.	Pricey.	★★★★ When performance is critical you can't do better.
Creative Labs Blaster CD 8X (800) 998-1000 *Reader Service No. 738*	$199	8X	Yes	190ms	A workable drive from a multimedia veteran.	Slower than most eight-speed drives.	★★★ Middle of the road in price and performance.
NEC MultiSpin 6V (800) 632-4636 *Reader Service No. 739*	$99	6X	Yes	152ms	Solid performer for a six-speed drive.	Makes heavy demands on the system CPU.	★★★ A worthy upgrade at a bargain price.
Pinnacle Micro 10Xtreme (800) 553-7070 *Reader Service No. 740*	$220	10X	Yes	226ms	First ten-speed drive; uses the least CPU power.	Surprisingly average performance, even vs. slower speed drives.	★★★ A ten-speed drive with eight-speed performance.
Chinon CDS-585 (800) 441-0222 *Reader Service No. 741*	$199	8X	Yes	212ms	None.	Weakest performance in our tests.	★★★ Better eight-speed drives abound.
Mitsumi Electronics FX600 (800) 648-7864 *Reader Service No. 742*	$149	6X	No	217ms	None.	One of the slowest drives we tested.	★★ Better than a quad-speed, but no bargain.
Philips PCA62CR (800) 235-7373 *Reader Service No. 743*	$79	6X	No	205ms	Cheapest drive in this roundup.	Performs only marginally better than a quad-speed.	★★ An inexpensive upgrade from a double-speeder.
CD-ROM Changers							
Panasonic Big 5 (800) 742-8086 *Reader Service No. 744*	$299	4X	Yes	221ms	Top-of-the-line performance; decent price.	We wish it could hold seven discs.	★★★★★ Top performance and internal convenience.
Alps 4X Internal Changer (800) 825-2577 *Reader Service No. 745*	$250	4X	Yes	216ms	Good speed for an excellent price.	Usability could stand some work; holds just four discs.	★★★★ Why not get the cheaper MultiSpin 4x4?
NEC MultiSpin 4x4 (800) 632-4636 *Reader Service No. 746*	$99	4X	No	237ms	Incredible price; smart design.	Holds only four discs.	★★★★ Very fast and ultra-affordable.
NEC MultiSpin 4Xc (800) 632-4636 *Reader Service No. 747*	$349	4X	No	360ms	Shuffles seven discs; superb design.	Can't match the performance of an internal changer.	★★★★ Your ticket for managing more than five discs.
Smart and Friendly CDJ 7004 (800) 959-7001 *Reader Service No. 748*	$349	4X	Yes	378ms	Holds seven discs; fine design.	Less sleek than the NEC MultiSpin 4Xc.	★★★★ The fastest seven-disc changer.

*ESTIMATED STREET PRICE

★★★★★ *Excellent* ★★★★ *Good* ★★★ *Acceptable* ★★ *Poor* ★ *Unacceptable*

CD-ROM

Pick Up the Pace

Next time you hit the computer store, you might be shocked to find eight-speed and faster drives for under $200. Such bargain prices should spur your decision to ditch your slow drive in favor of a speedier replacement. Performance may be little more than a luxury with other PC components, but fast CD-ROM drives open the door to a whole new world.

Quad-speed drives dramatically improve CD-based applications. Full-motion video and animation become feasible—even enjoyable. Most multimedia applications aren't designed to take advantage of six-speed and faster drives, but these CD speedsters have their own benefits, including faster application load times and quicker database access.

Of course, six-speed CD-ROM drives are looking at a short life span. Eight-speed drives are quickly becoming the standard, and you'll be far happier with the higher performance they provide. You'll pay only $50 to $100 more for the boost, and eight-speed drives eagerly await a flood of productivity apps infused with animation, sound, and 3-D graphics.

But what about ten-speed drives? The arrival of the Pinnacle Micro 10Xtreme drive would seem to herald the end of eight-speed drives, but let's not be premature—the 10Xtreme failed to perform as fast as most of the eight-speed drives. Until better-performing ten-speeders arrive, eight-speed drives are still the fastest way to spin discs on your PC.
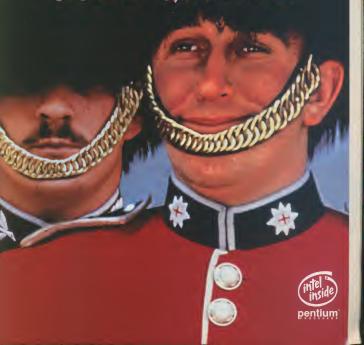
Maybe you'd rather find a way to dig out from under a pile of oft-used CD-ROMs. Multidisc databases have become such an entrenched part of business computing that convenience, rather than performance, is more important to many. For anyone who makes daily use of Microsoft Encarta or Digital Directory Assistant's PhoneDisc PowerFinder, a quad-speed changer is a godsend. These multidisc changers hold from four to seven discs and cost as little as $100.

Whatever your needs, there's a new CD-ROM drive to fill them. Take one for a spin.

Performance testing by IBRAHIM GUL *and* JON MILELLI. *Usability testing by* LULIT BEZUAYEHU.

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1 Choose the factor that's most important.	2 Choose the next most important factor.	3 Do you need a single-disc drive or a multidisc changer?	4 For your needs, the best product to buy is …
Performance	Usability	Single-Disc Drive	Plextor 8PleX
		Multidisc Changer	Panasonic Big 5
	Price	Single-Disc Drive	Teac CD-58E
		Multidisc Changer	NEC MultiSpin 4x4
Usability	Performance	Single-Disc Drive	Plextor 8PleX
		Multidisc Changer	Panasonic Big 5
	Price	Single-Disc Drive	Teac CD-58E
		Multidisc Changer	Panasonic Big 5
Price	Performance	Single-Disc Drive	Teac CD-58E
		Multidisc Changer	NEC MultiSpin 4x4
	Usability	Single-Disc Drive	NEC MultiSpin 6V
		Multidisc Changer	NEC MultiSpin 4x4

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Remote Po

Now you can stay connected, no matter

Have you ever needed crucial sales figures from your office PC when you were on the road? Ever tried to explain a system glitch to the information systems person over the phone? Ever telecommuted, only to realize that you forgot to print out that report the boss wanted to see *today*?

We've all been there. But remote control software is the solution to all these problems and more. These packages let you retrieve files, launch applications, and tap into network resources—whether you're in a hotel room in Albuquerque or in your den at home. And if you haven't used a remote control package in a couple of years, you're in for a surprise. The latest versions no longer require the patience of a saint and the technology skills of a programming prodigy.

Part of the credit for this newfound usability goes to

ssibilities

how far you roam

Microsoft for integrating basic remote communication features into Windows 95 and Windows NT. But even more credit goes to the software developers who have transformed remote computing from an arcane ritual to a routine problem solver.

To see how close remote control products bring you to actually being there, we put the three leading packages to the test in *PC Computing*'s Usability Labs: Traveling Software's LapLink for Windows 95, Artisoft InSync's CoSession Remote 7.0, and Symantec's pcAnywhere32 for Windows 95. We looked at how each handles the long-distance chores people perform most often: managing files, launching remote applications, conducting live training or support sessions, and accessing a remote network or the Internet.

The cost of one of these packages is a small price to pay for insurance that might someday save your job.

CHRIS O'MALLEY

SYNOPSIS

WELL CONNECTED: *Whether you need to transfer files, launch applications, conduct training, or access a network, these packages perform.* **190**

WINDOWS 95 AND NT: *Both have built-in remote control features, but they can't match a dedicated package.* **192**

USABILITY: *Our labs put remote control to the test.* **194**

FINAL ANALYSIS: *The best product for your remote needs.* **196**

File from the Field

When you need a file on the road, chances are you need it badly. Remote control packages give you quick access to any file on your office system. To determine the best package for you, look at usability and features rather than transfer speed (which is a limitation of your modem).

For file management, Traveling Software's LapLink for Windows 95 is the best package overall. Its split-screen, Windows Explorer–like interface takes care of file transfers without making you hassle with host and remote nodes. Its SpeedSync technology is the best at comparing and synchronizing files, so they're always up-to-date. And LapLink is the leader in direct cable connections. File transfers are a snap with parallel, serial, or

even infrared ports.

Artisoft InSync's CoSession Remote 7.0 covers all the basics as well. But unlike LapLink, it connects using separate host and remote modes. Artisoft reduces some of the dual-mode confusion by clearly labeling the windows as This Computer and The Other Computer. On the downside, CoSession Remote supports direct connections between serial ports only with a null-modem cable, which can be tricky to use.

File transfers with Symantec's pcAnywhere32 aren't as hassle-free as with LapLink. Like CoSession Remote, pcAnywhere32 for Windows 95 connects using different host and remote modes, which take some time mastering. Even so, the rest of the package is

Get Linked: LapLink makes file swapping easy via a cable, modem, or even wireless.

easy to learn, and it comes with all the necessary tools, including file synchronization and parallel cable or infrared connections. (The latter is new in the latest version, which should be available by the time you read this.) One key perk: pcAnywhere32 automatically scans for viruses during file transfers.

Control Your Apps

Not many people travel with *everything* loaded onto their notebook. So being able to launch and run applications back on the office computer is one of the most useful features that remote control software offers. In

Remote Reins: LapLink lets you view the entire screen of a remote application.

this area, all of these products make you feel as if you're at your desktop PC no matter where you are.

Each remote control package we tested puts you in command of a remote system that's equipped with the same control software. (All three products grant you the license to copy its software onto two computers.) The transfer speeds of the packages vary, but not by that much. Even so, it's worth looking for some timesaving shortcuts. For example, both LapLink and pcAnywhere32 automatically disable Windows wallpaper and screen savers during remote control sessions, making the process flow faster.

Multitasking support helps, too. All three packages perform remote control functions and transfer files simultaneously—a handy feature since the two tasks often go hand in

hand. However, LapLink is the only package that supports multiple remote sessions (over a network or multiple phone lines). With LapLink you can connect to as many as 11 computers at the same time.

In the past, most remote control software forced you to downshift to a standard VGA resolution of 640 by 480 before you could begin a session, but today's packages let you take advantage of the higher resolutions of your notebook or desktop computer. LapLink, for example, works with resolutions of up to 1,280 by 1,024 in 16 million colors. And better yet, LapLink scales a video display to let you see a launched application's entire screen on a remote PC—even when it's connected to a machine running at a higher resolution. Little touches like these make LapLink your best choice overall.

Long-Distance **Training**

Getting tired of trying to describe your PC problem to an information systems person over the phone? Each of these remote control programs can help with a variety of support or teaching and training functions. Remote control software brings the long-distance assistance right into your computer.

Once again LapLink takes the lead by letting you connect to as many as 11 computers at a time, making it an ideal tool for monitoring a group (typically over a network), or for handling technical difficulties between two remote users via separate phone lines. LapLink also has a handy chat function so you can discuss any problems online even if you have only one phone line.

However, CoSession Remote and pcAnywhere32 have a key support feature that LapLink lacks: the ability to

record training sessions for later playback. This lets you review what you've done as the "teacher" or the "student"—a great feature for online training. Like LapLink, CoSession Remote and pcAnywhere32 include chat features. But neither one currently handles multiple simultaneous sessions, though Symantec says that the next version of pcAnywhere32 will include this feature. And while CoSession Remote doesn't support multiple sessions, it permits simultaneous remote application and file control.

The simplicity of a remote control program is an important issue especially with users in the field or in remote offices who have little communications

Lessons Learned: Record a training session with CoSession (above) or pcAnywhere32.

expertise and need immediate help. LapLink's easy-to-understand, automated configuration tools and exceptional online help give it the edge over CoSession Remote and pcAnywhere32.

Reach for the **Net**

Remote control sounds fine, until you start talking long-distance charges and slow modem speeds. A two-hour session from Europe will soon have you singing the phone bill blues. Wouldn't it be nice to call a local Internet access provider and connect via the Net? And why spend time talking at 28.8Kbps if you have access to a high-speed LAN?

Net Pals: LapLink gives you several ways to find and connect with colleagues via the Net.

Don't worry, these remote control packages can help.

LapLink does its best to simplify all types of network connections. It automatically detects and configures the network protocols, reducing the network server link to a simple mouse click on the Connect over Network button. The downside: LapLink supports only TCP/IP and IPX protocols. However, when it comes to remote Internet connections, LapLink is more flexible—and clever. It lets you connect via a common Windows Internet Name Service (WINS) server or via a dynamic address-by-name system that lets you hook up to other computers via an Internet service provider. In plain English, that means you have quick-and-easy, point-and-click access to Internet-connected computers anywhere in the world.

With CoSession Remote you can

connect to NetWare, IPX/SPX, Net-BIOS, NetBEUI, LANtastic, and TCP/IP networks. You won't find a WINS server or dynamic addressing scheme for access across the Internet, but you can connect manually if you know the other computer's Internet protocol address.

Connecting to a network server with pcAnywhere32 isn't that intuitive, for it requires several steps and separate host and remote designations. However, pcAnywhere32 works with more network protocols than LapLink, including NetWare, IPX/SPX, NetWare Connect, NetBIOS, Banyan Vines, ISDN, and TCP/IP. The version of pcAnywhere32 we tested didn't support easy remote access via the Net, but the next release is scheduled to include a SmartList feature for finding pcAnywhere32 host or gateway machines over the Net or an intranet.

Top Remote Control Packages

Product	Price*	Pros	Cons	Unique Features	Verdict
PCComputing BEST **Traveling Software LapLink for Windows 95** (800) 843-9997 *Reader Service No. 731*	$149	Easy to use; speedy file synchronization; able to view a launched app's entire screen.	Can't record training and support sessions; network protocol support limited to TCP/IP and IPX.	Handles as many as 11 remote links at once; provides many Internet connection options.	★★★★★ A powerful and intuitive remote control package.
Artisoft InSync CoSession Remote 7.0 (800) 200-7455 *Reader Service No. 732*	$59	Good basic features; low price; broad network support.	Different host and remote modes can be confusing; poor cable transfer support.	Records training sessions for later playback; LANtastic network support.	★★★ Decent remote control at a down-to-earth price.
Symantec pcAnywhere32 for Windows 95 (800) 441-7234 *Reader Service No. 733*	$149	Solid in all areas; broad network support.	Separate host and remote modes are confusing.	Scans for viruses; records training sessions for later playback; supports Windows NT and ISDN.	★★★ A good bet if you need to connect over a variety of networks.

*ESTIMATED STREET PRICE

★★★★★ Excellent ★★★★ Good ★★★ Acceptable ★★ Poor ★ Unacceptable

Windows 95 and NT: Remote Access but No Control

Why buy a separate remote control package when Windows 95 and NT have built-in remote access features? It's a fair question. Both of Microsoft's operating systems have basic remote, file transfer, file synchronizing, and networking features. With Microsoft Plus for Windows 95 you even get software for setting up your system as the remote network server. For some, this might be all the remote access needed.

Three utilities make up the main remote access features in Windows 95: Dial-Up Networking, Briefcase, and Direct Cable Connection. All are installed automatically if you choose the Portable Setup option when you install Windows 95.

As its name implies, Windows 95's Dial-Up Networking utility lets you establish a dial-up (or remote node) connection to a LAN server. Once your PC is attached to the server, you have access to all the network's resources, including shared disks and printers. You can connect this way to several popular remote access servers—including Windows NT Remote Access Server (RAS) and Novell NetWare Connect 2—using different protocols. Windows NT Workstation also includes these dial-up features.

Briefcase is Windows 95's file transfer and synchronizing utility. It shows up as a file folder on the desktop and lets you easily drag and drop files you want transferred to or synchronized with another PC. You then establish the connection with Dial-Up Networking or, for side-by-side desktop-to-laptop transfers, with the Direct Cable Connection utility (via serial or parallel cables). Briefcase does simple file copying and performs some rudimentary synchronizing by comparing the date and time stamps of the files, and then copying the newest version.

So what does a dedicated remote control program buy you? For openers, remote control of your (or another) desktop PC. Dial-Up Networking and RAS give you remote access to network programs and resources, but they aren't designed to put you in remote control of your system. For example, you won't be able to look at the distant PC's desktop and launch applications from it.

In Sync? The Briefcase utility synchronizes files, but sends the whole file each time.

Dedicated remote control packages also include extra features not found in Windows 95 or NT, such as intelligent synchronization that compares files and sends only the changes, not the entire files. That can mean the difference between several minutes or a few seconds for each file you update. Dedicated packages also offer more connection, security, and customization options.

The built-in remote features of Windows 95 and NT are big steps forward, but they're still one or two behind most remote control packages.

LapLink Simplifies

Just how far has this once-knotty business of remote PC control come? Far enough that nearly anyone can transfer files or run programs when away from their desktop. That's the encouraging news from our usability testers, who methodically put Traveling Software's LapLink for Windows 95, Symantec's pcAnywhere32, and Artisoft InSync's CoSession Remote 7.0 through their paces in *PC Computing*'s Usability Labs.

Our testers consisted of Windows users who telecommute and need to transfer files while on the road. None of them, however, had ever used a remote control package.

Productivity Index

Our testers performed a set of four specific tasks: installing and setting up the programs (historically not a routine procedure with remote control packages), managing files, launching remote applications, and accessing a remote network to retrieve a file and print a document. There were hiccups along the way, but fewer than expected given the sometimes tricky nature of remote communications. Most of the time our testers completed the tasks within the allotted time with minimal help.

After hours of testing, a clear usability winner emerged: LapLink for Windows 95 from Traveling Software. It received a thumbs-up from testers for all four tasks, earning it our Usability Seal of Approval and scoring a ten on our Productivity Index (left). This index takes into account user satisfaction, feature set, the effectiveness of help functions, the number of tasks completed successfully, and the testers' final preference.

With LapLink's easy-to-understand, Explorer-like interface our testers completed all the tasks nearly every time. Its pop-up Quick Steps help system was the

Installation and Setup

Traveling Software LapLink	Symantec pcAnywhere32	Artisoft InSync CoSession Remote
✓		

Get Going: LapLink's ability to automatically detect modems and ports, coupled with its Quick Steps onscreen guide and Explorer-like interface, made it the easiest package for our testers to install and set up correctly. Installation was simple with pcAnywhere32's setup wizard. But its settings for host and remote modes and connections confused testers; ditto for CoSession Remote.

Managing Files

Traveling Software LapLink	Symantec pcAnywhere32	Artisoft InSync CoSession Remote
✓		

Fetching Files: All three programs have drag-and-drop and smart synchronizing features. But LapLink's single-interface simplicity and intuitive icons give it the edge, as do its flexible direct cable connection abilities. Testers were baffled by CoSession's direct cable connections, and often had trouble locating files in pcAnywhere32. Both packages also suffer from dual-modem complexities.

Remote Connections

Hold My Hand: LapLink's Quick Steps walk you through every part of a remote session. You can turn them off when you feel comfortable with a process.

Remote Thinking: CoSession Remote's interface is uncluttered and fairly intuitive, but testers found its separate host and viewer Control Centers confusing at first.

Leaping Wizards: The wizard screens in pcAnywhere32 help you get started with remote connections, including dialing an online service.

best at getting users back on track when they needed a hand.

Symantec's pcAnywhere32 and Artisoft InSync's CoSession Remote finished a distant second and third, respectively, in overall usability. But in a very positive sign of the times, neither one was deemed overly difficult to use or lacking in any key feature. Rather, each had a few rough spots—many as a result of their separate host and remote modes, which sometimes made the programs confusing and inflexible, and left users unsure of the next logical step in a task. However, our testers found that the tasks got easier as they became better acquainted with the host and remote mode terminology and logic.

Still, LapLink for Windows 95 was far and away our testers' top choice for fuss-free remote access to files, programs, or a network, and for remote training and technical support.

Launching Remote Applications

Traveling Software LapLink	Symantec pcAnywhere32	Artisoft InSync CoSession Remote
✓		✓

Portable Programs: LapLink and CoSession received passing marks for ease of use in finding and launching an application on a remote machine. But pcAnywhere32 didn't quite make the grade, as our testers had a hard time deciphering pcAnywhere32's screen presentation of host and remote machines, and often couldn't locate the Start button to launch a program.

Network Access

Traveling Software LapLink	Symantec pcAnywhere32	Artisoft InSync CoSession Remote
✓	✓	✓

Nomad Netting: Each program passed the file copying and printing tests from a remote network drive. Our testers often reported that it felt "just like being there." A few times our testers were tripped up finding the correct button, file, or mode. But nearly all were able to retrieve the needed file and remotely send a document to a network printer without a hitch.

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REMOTE

Total **Control**

For years remote control programs have been among the most needed yet least intuitive software utilities. They worked, but they required a lot of technical knowledge tempered with patience. That has clearly changed with Windows 95 and the new generation of remote programs we tested. There's no reason to fear the remote connection any longer.
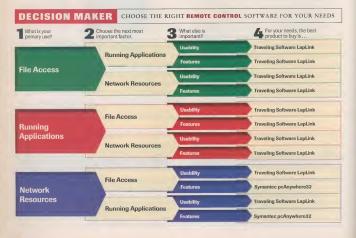
If you're going remote, make your connections as versatile and efficient as possible with one of these programs. Windows 95 and NT have some remote access features, but they still lack the ability to remotely operate desktop PC applications. And the Briefcase file transfer feature in Windows 95 is a pale shadow of the transfer utilities found in dedicated packages. The temptation to stick with the freebies is alluring, but for the modest price of these programs it's not worth denying yourself their benefits.

So which one should you choose? In this case, the decision is more about your personal working style than about feature sets, but Traveling Software's LapLink gets higher points for its simple elegance. It also

earns top honors for providing a single Explorer-like interface instead of making you wrangle with host and remote modes. LapLink (which started as a bridge for cabling laptops and desktops together) clearly understands communications and the value of ease of use.

That's not to say you should dismiss Artisoft InSync's CoSession Remote and Symantec's pcAnywhere32 completely. Each covers all the remote control basics, and then some. You might even find perks in either package that swing the balance. For example, pcAnywhere32 contains an automatic virus scanning feature, and both it and CoSession support more networking protocols than LapLink. But you'll have to take a little more time along the learning curve. For most everyday uses, it's tough to beat the simple efficiency of LapLink for Windows 95.

CHRIS O'MALLEY *is a freelance writer who specializes in video and telecommunications. Usability testing was performed by* LULIT BEZUAYEHU *and* LYDIA M. KARLOWICZ.

DECISION MAKER   CHOOSE THE RIGHT **REMOTE CONTROL** SOFTWARE FOR YOUR NEEDS

1 What is your primary use?	**2** Choose the next most important factor.	**3** What else is important?	**4** For your needs, the best product to buy is . . .
File Access	Running Applications	Usability	Traveling Software LapLink
		Features	Traveling Software LapLink
	Network Resources	Usability	Traveling Software LapLink
		Features	Traveling Software LapLink
Running Applications	File Access	Usability	Traveling Software LapLink
		Features	Traveling Software LapLink
	Network Resources	Usability	Traveling Software LapLink
		Features	Traveling Software LapLink
Network Resources	File Access	Usability	Traveling Software LapLink
		Features	Symantec pcAnywhere32
	Running Applications	Usability	Traveling Software LapLink
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- 32-bit PCI slot greatly increases expansion capabilities

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DANGER!

Deadly new computer viruses want to

The dreaded Ebola virus makes applesauce of your internal organs. A computer virus tears up your hard drive and brings down your network even faster. Don't think you're in danger of becoming a virus victim? Think again. A recent survey by the National Computer Security Association showed that virtually all midsize and large organizations in North America have had at least one computer virus. And with the arrival of insidious macro viruses and the burgeoning use of the Internet to send and receive software, the odds keep increasing against you.

kill your PC

BY JAMES DALY

Don't panic. While nothing can protect you 100 percent, a good virus scanner detects and eradicates nearly all known viruses before they can do any harm to your computer. But although many developers love to flaunt how many viruses their scanners can detect, the real issue is how easy the software is to use. So *PC Computing* took a long look at four of the leading scanners for Windows 95 to see which one was not only the most effective, but also the easiest to install and operate. Because an overly complex virus scanner that sits unused on a shelf won't protect you from anything.

PHOTO :: MASTERFILE

Reviews: Powerful Virus Scanners

You need protection. The computer virus infection rate is sky-high—thanks in large part to omnipresent culprits like the Word.concept macro virus, a nasty bug that infects and damages Microsoft Word documents at a dizzying pace.

You can save yourself with a good virus protection package. Any virus scanner you buy should handle at least three tasks: virus detection, virus prevention, and virus removal. While all the leading packages will detect and eliminate the most common threats of infection, they differ greatly in quality.

Disk Disinfectant Armed with this information, we picked the two best-selling Windows 95 antivirus packages: McAfee Associates's VirusScan 2.0 for Windows 95 and Symantec's Norton AntiVirus 1.0 for Windows 95. Then we added two highly regarded contenders: TouchStone Software's PC-cillin 95, and Dr. Solomon's Anti-Virus Toolkit 7.55 for Windows 95 from S&S Software Int'l.

We evaluated each in four areas: ease of use, virus detection and eradication, scanning speed, and network scanning. When the disinfectant settled, two rivals rose to the top, with TouchStone Software's PC-cillin 95 just nosing out McAfee's VirusScan.

PC-cillin 95 is easy to install and its clean, attractive interface is never confusing. The package also has the best update feature of the bunch: a few mouse clicks lets you quickly go online via an electronic bulletin board or the Internet to update your virus database.

After discovering our intentionally implanted virus, PC-cillin 95 popped up a dialog box that identified the bug and offered both a fix and a removal option. It couldn't be simpler. PC-cillin 95 will even search through Internet e-mail and software as you download.

McAfee VirusScan nearly ties with PC-cillin 95 for usability. The program's installer even scanned

Alert! A good virus package warns you when you're under attack. McAfee even supplies several treatment options.

our hard disk, discovered we had Microsoft Word infected with the Word.concept macro virus. But updating VirusScan's virus database required a few trips to the manual, and the online virus library was sometimes difficult to access. On the positive side, VirusScan comes with a clean boot disk that helps you get a virus-zapped system up and running again.

Falling Behind Norton AntiVirus for Windows 95 and Dr. Solomon's Anti-Virus Toolkit each has some flaws—and some bonus features. Norton AntiVirus's interface forces you to dig through menu layers simply to scan a specified directory, and this version can't scan network drives. However, Norton AntiVirus was the fastest scanner we tested. It zipped through our test directory of 1,950 files in a speedy 51 seconds. Meanwhile, Dr. Solomon's Anti-Virus Toolkit provides a great virus tutorial, but the whole package needs a usability face-lift. It presents a number of confusing installation options that could thwart success. And when Dr. Solomon's discovers a virus, you must load a separate program to kill the intruder and repair the problem.

Interview with a Virus Writer: Captain Zap Comes Clean

No one ever accused Ian Murphy of being a good citizen. In 1981 Murphy became the first person in the United States to be charged with a computer crime. In his spare time Murphy tapped the White House and Pentagon phone lines. Now 40, the former Captain Zap no longer tries to break in; he protects, as a computer security consultant in Gladwyne, Pennsylvania. We asked for his insights into the escalating virus situation.

Did you have some political motive for writing viruses, or was it just the thrill? It was an intellectual and programming

challenge. I didn't intend any of the viruses to go out and destroy other data. But I know plenty of people who do. Writing a virus is considered a rite of passage to some—it gives you a notch in your belt.

Is it easy? Very easy. The computer underzground has produced programs that let you create viruses using pull-down menus. You ever hear of the Virus Construction Laboratory? It's software that enables you to write a virus in under five minutes. You can create a logic bomb, a time-delay virus that will compromise someone's data in a week or a

month, or another that downloads all the information from a user's hard drive onto another machine and then reformats that hard drive. It's a wonderful tool for industrial espionage.

Is it any tougher to release viruses now that new operating systems like Windows NT have built-in security? It hasn't changed anything. Everybody and their brother knows the inner workings of these operating systems. They're widely released in beta versions before they even come out. The computer underground has that information and knows how to circumvent it.

True Tale: Virus Attack on a Nuclear Power Plant

It was 5 p.m. on the Friday before Labor Day weekend, a time when most people were thinking about the beach and barbecues. Then Ken Jaworski, a Senior Information Protection Specialist at Detroit Edison, received a call from the company's Fermi Nuclear Power Plant in nearby Monroe, Michigan.

The news was not good. Nearly 500 of the nuclear facility's PCs had contracted the Word.concept macro virus. Systems were hanging. Some data was inaccessible.

"I wasn't sure what damage the virus had done or was doing even as we talked," said Jaworski, who is in charge of the five-member Detroit Edison Virus Response Team. "It certainly got my heart beating a little faster."

For Jaworski, the Labor Day weekend was going to mean just that: labor. By Saturday morning his team had scanned dozens of electronic bulletin boards around the world looking for a fix. After finding one, the team began the grueling

task of cleaning out the infected PCs and inoculating hundreds of others. By Tuesday morning, when the rest of Fermi's employees returned from their weekend in the sun, things were running again.

Jaworski's story is not unique. The chances of encountering a virus today are five to ten times higher than early last year, according to the National Computer Security Association's (NCSA) 1996 Computer Virus Prevalence Survey (for a copy of the report, go to www.ncsa.com).

According to the findings of the poll of 300 midsize and large companies and government agencies, if you have 1,000 PCs in your organization you can expect to get hit by a computer virus about 120 times this year.

Curing an infection isn't cheap, either. According to the NCSA report, on average, complete recovery from a virus takes more than 40 hours and costs over $8,000.

Even being aware of viruses doesn't always guarantee immunity. Last August the Ohio State Auditor's Office in Columbus tangled with a computer virus called Neuroquila. "We were scanning all new software, doing everything by the book, but the antivirus software didn't recognize this new one," said network administrator Bill Myers.

Little damage was ultimately done by the virus, although the infection did shake up the department and raise awareness about how quickly viruses can invade and conquer. Said Myers: "We still don't know how we got it, and that's the scary part. This time we got lucky. Next time, who knows?"

Top Virus Scanners

Product	Price*	Time to Scan 1,500 Files	Scans Network Drives	Pros	Cons	Verdict
TouchStone Software PC-cillin 95 (800) 932-5566 *Reader Service No. 752*	$50	53 seconds	Yes	Excellent update feature; unobtrusive background scanning; protects against Internet-borne viruses.	Difficult to scan individual files.	★★★★★ The best way to protect your PC from deadly invaders.
McAfee Associates VirusScan 2.0 for Windows 95 (800) 332-9966 *Reader Service No. 753*	$45	1 minute, 12 seconds	Yes	Easy to install; doesn't take up much space in memory.	Slightly complicated virus update feature.	★★★★ A top-notch package from an old-time virus killer.
Symantec Norton AntiVirus 1.0 for Windows 95 (800) 441-7234 *Reader Service No. 754*	$79	51 seconds	No	Easy to install; looks for virus-like behavior as well as known viruses; quick scanning.	Tricky interface; limited options once virus is discovered; no network drive scanning support.	★★★ A longtime leader needs a usability update to keep up with the competition.
S&S Dr. Solomon's Anti-Virus Toolkit 7.55 for Windows 95 (888) 377-6566 *Reader Service No. 755*	$89	2 minutes, 2 seconds	Yes	Good virus tutorial.	Confusing installation instructions; awkward repair abilities; slow scanning.	★★ A good scanner, but it falls short on usability.

*ESTIMATED STREET PRICE

★★★★★ *Excellent* ★★★★ *Good* ★★★ *Acceptable* ★★ *Poor* ★ *Unacceptable*

VIRUSES

Virus **Killers**

The mere whisper of a computer virus makes many PC users' blood run cold. It should. Viruses are a real threat to your livelihood. They can turn a thriving, active business into an office full of dumbstruck workers who can't touch their PCs.

But should you stop downloading software, refuse e-mail from strangers, and avoid the Internet like a week-old tuna sandwich? Not necessarily. Only about 200 viruses actually pose a serious threat. Most viruses are more annoying than destructive. Many hundreds of others are safely segregated in virus research labs, where antivirus software developers constantly invent new ways to combat them.

Best of all, viruses are easily prevented. The more you know about them, the better your chances of escaping unharmed or avoiding them in the first place.

Nothing can replace the commonsense stuff: isolating new software, issuing awareness bulletins, and backing up your most important files. But a good virus scanner can help. All the packages we tested detect and eliminate the most common viruses. And Norton AntiVirus for Windows 95 even detects some viruses before anyone knows they exist. But the best scanners, such as TouchStone Software PC-cillin 95 and McAfee Associates VirusScan 2.0 for Windows 95, make installation and day-to-day operation an easy task.

In addition to having a straightforward interface, both products run in the background, constantly checking for invaders every time you install new software or insert a disk. They also let you scan your network drives at any time. But PC-cillin 95 climbs to the top of the pack with its easy-to-use virus update feature and its ability to scan while downloading.

Norton AntiVirus 1.0 and Dr. Solomon's AntiVirus Toolkit 7.55 are also admirable packages that will certainly protect your system, but we'd like them more if the developers made them just a bit easier to use.

Where viruses are concerned, the only wrong choice you can make is not to choose any virus scanner at all.

JAMES DALY is Features Editor at Wired *magazine. Lab testing was performed by SCOTT NAYLOR.*

DECISION MAKER — CHOOSE THE BEST **VIRUS SCANNER** FOR YOUR NEEDS

1 Choose the factor that's most important.
2 Choose the next most important factor.
3 What else is important?
4 For your needs, the best product is …

Usability	Features	Performance	PC-cillin 95
		Network Support	PC-cillin 95
	Price	Performance	VirusScan 2.0 for Windows 95
		Network Support	VirusScan 2.0 for Windows 95
Features	Usability	Performance	PC-cillin 95
		Network Support	PC-cillin 95
	Price	Performance	PC-cillin 95
		Network Support	PC-cillin 95
Price	Usability	Performance	VirusScan 2.0 for Windows 95
		Network Support	VirusScan 2.0 for Windows 95
	Features	Performance	PC-cillin 95
		Network Support	PC-cillin 95

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- HarperCollins Interactive Chaos ● Compadre PowerPoint
- Indiana Jones and His Desktop Adventures ● BusinessWorks
- Smart Home Manager ● Vertisoft Zip-It 3.0
- Lifetime Encyclopedia of Letters ● Presto PageManager Suite
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EMPLOYEE MANAGEMENT

Review **Writer** 3.0

In the working world, performance reviews are all-important report cards that make everyone feel like nervous kids again. Since they're so vital, managers need to spend considerable time (something they have in limited supply) writing them. To ease the writing process, Avantos Review Writer 3.0 provides a structured, step-by-step approach that is simple, quick, and sound.

To use Review Writer just select the performance areas applicable to the employee from a list of 30 (you can also

create your own). You then write specific comments and rate the employee in each area. Based on your ratings, Review Writer suggests text—written by human-resource experts—that describes the performance level. Edit the text to your liking, then run the program's legal check to identify words and phrases that may be inappropriate.

Use the program to track employees' goals and record key events. Password protection and encryption ensure the information stays confidential. Review Writer also comes with a font designer that lets you use standard company review formats.

Review Writer greatly simplifies and speeds the process of writing performance reviews, though busy managers might be tempted to rely too much on standard review templates. Still, Review Writer is easy to understand and use, and it gives managers a good jump start. **WAYNE KAWAMOTO**

TUTORIAL

Typing Instructor

If you're like most people in the corporate world, you dropped out of typing class in tenth grade because it was boring and you never thought you'd need typing skills again. Since then, you've become a three-to-five finger typist who keeps one eye on the keyboard. Individual Software created Typing Instructor Deluxe CD with you in mind. This CD-ROM helps you unlearn bad habits and improve your typing skills.

Typing Instructor lets you select your skill level and target

a word-per-minute speed, then matches its lessons to help you meet that goal. As you improve, the difficulty level increases. To gauge your progress, you can take typing tests, or play one of three interactive 3-D games such as Undersea Adventure, where you have to type words before a lobster eats them. You can also type text from over 250 articles on various topics to test your speed and accuracy. Unlike some of its competitors, Typing Instructor lets you select your own path to proficiency rather than locking you into a structured course.

A virtual airport terminal serves as your starting backdrop, and the "passport" you fill out determines which level of instruction you need to start from. You practice your typing on a virtual laptop computer. The training method and tools are sound making this a great CD for improving your typing skills. **KATHY YAKAL**

Top 10 Reasons to C.Y.A.*

*Cover Your Applications

10. "What do I need a backup for?"

9. You haven't yet memorized all 400 pages of the Windows 95 manual.

8. Because you don't remember how to create a CONFIG.SYS from scratch.

7. "I didn't think installing the shareware program would do any harm."

6. Cars aren't the only things that need insurance.

5. "Windows 95 Registry? — but I already registered my software."

4. Because not every program has an uninstall feature.

3. Carl in Accounting swears he doesn't really need a SYSTEM.INI file.

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1. "I didn't change a thing!"

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Don't run Windows without C.Y.A. — your files aren't safe without it.

Some more reasons to use C.Y.A. :

- Gets you back to work fast with a simple one-step restore in case of Windows lockups.
- Saves a baseline copy of your System Registry and displays all of the changes made by other applications.
- Displays organized view of file changes.
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The easiest way to recover from Windows crashes.

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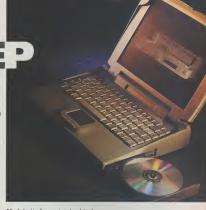
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MAPPING UTILITY

BusinessMap

If you need business names, numbers, and notes at your fingertips, nothing beats a trusty, easy-to-use contact manager. Even so, sometimes you need a more visual tool to track your customers. Environmental Systems Research Institute (ESRI) BusinessMap is a great way to get the big picture.

BusinessMap is a database mapping product that includes maps of the United States, Canada, and several other countries. The maps are broken down into layers of states, counties, cities, and major roadways. You plot information

on the maps by importing data from your favorite spreadsheet or contact manager. Show as many or as few layers as you need to analyze sales territories, design mailing campaigns, or plan business trips.

Plot distances between meetings to minimize your travel time, and save even more time by importing gas, food, and lodging information from any phone-listing CD-ROM. BusinessMap includes U.S. census information for demographic research, and zip-code boundaries for targeted mailings. You can color code your findings or plot them on a chart.

Want to try before you buy? Grab a free trial version via a link from www.pccomputing.com or from ESRI's Web site at www.esri.com. This light rendition gives you a good taste of the product. Not everyone needs this much info, but traveling sales professionals will find BusinessMap a powerful business tool.　JULIE POLITO

3-D GAME

Chaos

Chaos takes the same premise as Myst: When you click on various objects, you get random clues and unconstructed puzzles that you must piece together to move on. But HarperCollins Interactive's Chaos takes on new territory—the strange mathematical world of fractals and chaos theory.

The setup is vaguely reminiscent of Myst. Rather than waking up on a deserted island, though, you wake up in a

trailer home. The only thing you know when you start is that you must find your long lost Uncle Prospero. Instead of going through different ages as in Myst, you go to different buildings and areas—such as a weather station and the coastline.

While the 3-D rendered graphics aren't quite as clean as Myst's, with Chaos you can travel about more quickly and easily. Also, Chaos's puzzles are a bit simpler, and you're restricted from moving in certain directions so you're always close to the clues.

The only real drawback to the game is its navigational controls. To get to a particular object you often have to move at a 90-degree angle, which can get confusing. So it's a lot like Myst—who cares? It doesn't score big points on originality, but as far as true game play goes, it's a keeper.　JACK LYON

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PRESENTATION ADD-ON

Compadre

Think most Microsoft PowerPoint presentation slides look the same? You're right—for the most part they do. With the tools in Three D Graphics' Compadre PowerPoint CD-ROM, however, you can create unique presentations and add life to even the driest material.

The Compadre CD contains 152 textures, 35 music clips, 96 sound effects, 120 design templates, 23 video clips, 1,400 multimedia buttons, and 180 backgrounds, all designed to help you create a riveting presentation. And a

Windows 95 Setup wizard makes installation easy by creating shortcuts within PowerPoint.

Ready to fire up that sales team? Add the bugle sounds of reveille to your slide that introduces names of accounts you want to land. Or include taps and video footage of a building being blown up in the section of your presentation that displays the list of competitors you beat out for that big account. Make your text stand out by putting it on a textured background of rich marble with a striking bevel. These are just some of the ways you can liven up your PowerPoint presentations.

Take Compadre for a spin by downloading a demo via a link from www.pccomputing.com or from Three D Graphics' Web site, www.threedgraphics.com/compadre. Compadre is a surefire way to guarantee you'll never create another snoozy presentation again. **LIESL LA GRANGE NOBLE**

CD-ROM GAME

Indiana Jones

By the game's name, you're probably conjuring up a vision of slipping on a fedora, coiling up a bullwhip, and living out your dream of taking on the Nazis as Indiana Jones. Well, keep dreaming.

Indiana Jones and His Desktop Adventures takes the premise that hundreds of games have before. You walk around an uncharted land, navigate via various maps you come across, and collect objects along the way like guns, a

shovel, an Aztec shield and a first aid kit. At the same time you have to be careful to avoid the bad guys and other evil creatures like snakes and tarantulas.

Set in 1930s Mexico, your goal changes every time you play the game. Sometimes it's to rescue a kidnapped damsel in distress, other times you're charged with retrieving an ancient artifact. Nice ideas, but not loads of fun to play. The graphics are basic at best, and so are the strategy and technique.
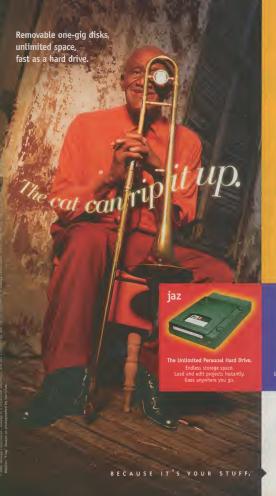
The CD-ROM costs only $20, and each round takes about an hour to finish—perfect for a lunch break or a quick flight. That said, you're likely to get bored with this CD quickly, especially after you've solved the entire game several times and see the same scenarios pop up again and again. When it comes down to it, winning a game in Indiana Jones is more about patience than skill. **JACK LYON**

ACCOUNTING
BusinessWorks

Sometimes it pays to buck a trend. Sure, everyone in the world seems to be running out to buy Intuit QuickBooks to handle their small-business accounting. But some of those buyers will no doubt find themselves hitting a wall when their small business becomes a not-so-small business. That's why the world still needs products like State of the Art's BusinessWorks for Windows.

Don't be fooled by the *version 11.0* on the box. While

State of the Art has been busy making DOS-based accounting software for years, this is the first Windows iteration. But rest assured, it's a good one.
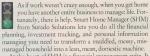
BusinessWorks is a hardcore, multiuser accounting system for the serious, so don't expect lots of glitzy report-customization tools and multimedia wizards like you'd find in Peachtree Accounting or QuickBooks. But it does offer lots of detailed online help, and a clever icon-bar interface that gives you quick access to all the modules, from General Ledger to Mailing Labels.

Of course, like all modular accounting packages, this one doesn't come cheap: The modules cost about $395 each. Still, you can save money by purchasing only the modules you need. State of the Art offers a free trial version of the product you can download from a link at www.pccomputing.com or at www.stateoftheart.com. **CHRISTOPHER LINDQUIST**

FINANCE
Smart Home Manager

As if work weren't crazy enough, when you get home you have another entire business to manage: life. Fortunately, there is help. Smart Home Manager (SHM) from Surado Solutions lets you do all the financial planning, investment tracking, and personal information managing you need to transform a muddled, messy, mismanaged household into a lean, mean, domestic machine.

At the heart of SHM is a financial management suite. It covers all the basics: balancing your accounts, tracking your

investments, and planning budgets for your future.

You'll have no more excuses for forgetting birthdays or dinner dates—as long as you remember to check SHM's personal information manager. It reminds you of all your to-do items—even such tasks as car repairs and household chores. SHM provides a dozen different databases to track these details, as well as others, including the contents of your library or your wine cellar. You can create any number of custom databases.

Each member of the family can have an individual account with password access to their own records. Send e-mail between family members and attach external files such as video file formats. The downsides: The interface could be more attractive and the online help a little clearer. Overall, however, Smart Home Manager helps you better manage the game of life. **LEANDER KAHNEY**

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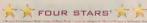
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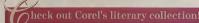
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COMPRESSION UTILITY

Zip-It 3.0

When hard drive space is at a premium and your phone bills from sending large e-mail file attachments are sky high, a file-compression utility can help. Instead of using a cryptic DOS utility to zip files, rely on Vertisoft Zip-It. This graphical utility brings PKzip compression plus a slick feature set to Windows 3.1 and Windows 95, and you don't need a copy of PKzip to run it.

Just select files in Zip-It's window and click on the

compress icon. If you prefer to work in Windows 3.1's File Manager or Windows 95's Explorer, you can drag and drop files into Zip-It's window to compress them. Like PKzip, Zip-It compresses files across several floppy disks and makes self-extracting archives.

View files in popular formats (Lotus 1-2-3, Microsoft Word, and so on) within zipped files, and edit or run them without extracting the whole file. Zip-It can also add files into zipped archives or pull single ones out, compress files by date, and search for files inside zipped archives.

Zip-It worked flawlessly—we had no problems extracting or compressing PKzip files. One drawback: It doesn't read other compression formats such as ARC or LZH. While Nico Mak's WinZip 6.0 performs many of the same functions, it doesn't offer as many options for managing files. For your zipping needs, Zip-It does the trick. **WAYNE KAWAMOTO**

LETTER-WRITING TUTORIAL

Encyclopedia of **Letters**

Do you ever wonder how the art of letter writing gets lost on you? No worries. If you occasionally have problems finding the right tone, the best turn of phrase, or a clear, simple overall structure, then Lifetime Encyclopedia of Letters from Streetwise Software can help. Encyclopedia of Letters is a collection of 850 model letters for every occasion or circumstance. Drawn from the best-selling book of the same name, this assortment of letters takes the worry out of writing.

Written by accountant Harold Meyer, the Encyclopedia of Letters features letters in 500 categories, ranging from letters of solicitation to sales follow-up notes. To find the letter you want, search the index by keyword or category, and the program returns the best candidates. You can import the text into your word processor and then put the personal finishing touches on the letter you've chosen.

Sometimes it's difficult to find the letter you need, due to some strange category names, such as Requesting Favors. You may also find many of the letters too impersonal or too specific, so while they're fine as examples, expect to spend considerable time revising them. And you might feel uncomfortable adopting someone else's voice, especially when it comes to something as personal and individual as a letter. **LEANDER KAHNEY**

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Phone: 718-392-3100   Internet: http://www.helixsoftware.com   **Circle 379 on reader service card.**

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DOCUMENT MANAGEMENT

Presto PageManager

Logic says that if you have a scanner, you're well on your way to having a paperless office, right? Easier said than done, unless you have the right software.

Presto PageManager Suite is a strong collection of scanning applications that just might help you get rid of the mounds of paper in your office.

Presto PageManager Suite has all the utilities you need for basic document management, including fax, OCR, an image editor, business card scanning software, and an electronic filing system. It even has an electronic forms package so you can scan in printed forms and fill them out electronically.

If you've ever used the software that comes with Visioneer's PaperPort page scanner, you get the picture. But unlike Paper-Port's software, Presto PageManager also comes with image-editing applications so you're not limited to text documents. Not bad for $199.

Each of the included applications works with the scanning suite's front end, and they all work well together. If you're already confident in the software bundled with your document scanner, PageManager's added functionality may not be worth the expense. But if your scanner isn't helping you banish the paper pile, PageManager is an easy, affordable solution.

JACK LYON

RATING: ★ ★ ★ ★

SCREEN UTILITY

Catz

Do you include your Pet Rock in family pictures? If so, Catz from PF.Magic may have an addition for your family. Similar to Dogz, PF.Magic's first pet product, Catz takes Dogz's original interface a step further, giving you a bigger selection of toys for your cat and more action, including an animated mouse for your cat to chase.

You adopt your new kitten from a computer retail store at PF.Magic's Web site, www.pfmagic.com, or via an 800 number. Choose your computer kitty from five different "breeds": Jetster, Pouncer, Homebody, Sophisto, and Scaredy. Give your new cat a name and take it home to your desktop. It can live in a window or keep you company as it wanders around your applications.

Catz comes with a virtual shelfful of items for the care and feeding of your feline friend—food, toys, flea spray, even catnip. Just pick an item from the shelf, and your cat will react to it accordingly. For example, take the hunk of cheese to lure the cartoon mouse from its hole, and watch your cat chase or ignore it.

Catz is clever, but what does it do? Nothing, really. It has a screen saver and security features, and it makes some cute noises, but it's mostly a time-wasting, if entertaining, toy. Play with it occasionally, but if you start posting pictures of your pet on PF.Magic's online gallery, you might think about getting out a bit more.

JULIE POLITO

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PASSWORD PROTECTION
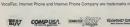
Password Master

These days you need a password to boot up your computer, a serial number to track down stolen property, a code for your house alarm, and a personal identification number to withdraw money from the bank. It's easy to feel like you're on the brink of memory overload. If the only way you remember a password or security number is to write it down, you'd be wise to check out Password Master.

Developed to store, manage, and secure all forms of frequently used log-in words and access numbers, Password Master offers two modes. The first, Master Mode, lets you add, change, and delete information in the database. The second, View Mode, simply displays each stored file.

A useful feature in Password Master is the hinting system, in which clues are displayed in lieu of an actual password. For example, Password Master lists *Grandma's dog* to jog your memory of the password *Snoopy*. Once you enter information into the application, it stays protected. Only your master password lets you access stored codes, hints, and log-ins in the database. Just don't forget what your master password is.

It's a bit tedious to input every PIN number, password, and access code in a database. But knowing that your valuable information is safely stored and easily accessible does wonders for your peace of mind. **KEDREN DILLARD**

WINDOWS UTILITY

Lightning Power Controls

If you find the nested menus in Windows 95 a pain to navigate, take a look at Lightning Power Controls (LPC) 95, an interface enhancer from Lucid Corporation. LPC 95 is a hybrid control panel that blends features from the Windows 95 toolbar with the icons found in most applications. LPC 95 lets you launch programs and control what each does using the same tool palette.

LPC 95 is organized like a sheaf of folders. Each folder represents a different application—click on a folder's tab to launch a new program. The folder you click on comes to the front of the stack, presenting you with a set of control buttons that you can customize. These buttons can do just about anything, from running macros to launching the Find File function—it's up to you to tailor them.

LPC 95 is easy to configure and learn. It's great for switching between applications, and for performing the same task (such as pasting graphics) across several documents.

But LPC 95 doesn't do anything you can't already do in Windows 95, especially if you're adept at creating keyboard shortcuts, using right mouse-button menus, and juggling applications with the toolbar. LPC 95 also takes up valuable screen space, and doesn't shift to the background when you open new windows. **LEANDER KAHNEY**

Circle 194 on reader service card.

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way over modems, IPX and TCP/IP networks, serial cables, parallel cables, wireless, even the Internet, there's no need to laboriously reconfigure.

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CLIP ART

Art Parts

Yawn. If that's the way you feel at the mere mention of clip art, take a look at the latest designs from Art Parts—they're sure to change your mind.

Talented artists Ron and Joe produce quality designs you would actually want to use. Their images are fresh and compelling, begging to be examined as much for their simplicity as for their fine detail. And attention-getting graphics mean that your words will get noticed too.

Over 40 different disks are available. Each one contains a minimum of 50 clip-art images, in categories ranging from animals and body parts to academia, occupations, and technology. Each disk costs $49.50 (or $29 for a monthly clip-art subscription). The collections are also bundled on two CD-ROMs ($279) or you can purchase them separately—CD-Ron 1 or CD-Ron 2 ($179 each). For another $35, the Regular Joe font is a perfect complement to the casual, laid-back style of clip art from Art Parts.

The woodcut-style images have a hand-drawn look that helps make your message personal and unique. With these often humorous but never corny images, your audience won't feel that they've seen the same designs a hundred times before.

MARTY BEAUDET

FILE MANAGEMENT

Name-It

If you're living in a Windows 95 world and running Windows 3.1, sooner or later you'll run up against the obstacle of filenames. Windows 95 users are basking in the glory of 255-character filenames, while you're stuck with a measly 8 characters.

Vertisoft Name-It lets you take advantage of long filenames in Windows 3.1 applications just as your colleagues use them in Windows 95 programs. Name-It eliminates the confusion caused by having two filenaming systems in one operating environment, and minimizes the frustration created by cryptic 8-character filenames. It also helps you quickly find the files you're looking for.

You can opt to have Name-It run every time Windows loads or only at your command. When you activate file-management functions like Open and Save As in Windows 3.1 applications, the corresponding Windows 95 dialog box opens and lets you enter a filename of up to 255 characters. A history dialog box lists long filenames that were saved using Name-It. You can launch these right from the history box using Windows 95's Quick View.
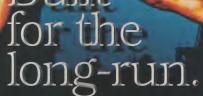
Are these features worth $30? Yes—especially if you find yourself repeatedly combing through directories, losing work time as you track down elusive files. Name-It is a simple, viable solution to a pesky problem.

KATHY YAKAL

DESKTOP SHELL

WitchDesk

You can customize your Windows 95 desktop with the Properties menu to give it that personal touch, but ultimately everyone's desktop still ends up looking (and acting) the same. Want to express yourself a bit more? A new desktop shell and program launcher called WitchDesk for Windows 95 lets you run your own show with customized desktop wallpaper scenes.

WitchDesk ships on a CD-ROM with over 17,000 backgrounds to choose from. Select a tropical setting or your favorite classic oil painting, or use the WitchColor image editor to create your own background. Once you've chosen a background for your desktop, you can designate objects in it by activating the Edit Object group of icons. Each selected object turns into a movable, sizable, editable object to launch applications, shortcuts, macros, or events.

Unfortunately, setting up WitchDesk isn't as easy (or as much fun) as it should be. Creating macros requires programming in WitchDesk's own language, which is less than intuitive. The biggest limitation, however, is that WitchDesk makes heavy demands on system resources. It slowed the performance of even a 133MHz Pentium with 16MB of RAM.

If you've got oodles of disk space, memory, and free time, WitchDesk is an entertaining way to personalize your desktop. But to launch your applications easily, the humdrum Windows 95 desktop is a better choice.　　MARK BAARD

ENTERTAINMENT

P.A.W.S

You don't need to have a dog fetish, just a sense of humor, to enjoy P.A.W.S, the Personal Automated Wagging System CD-ROM. Although the program is oriented toward children ages five and up, adults will delight in playing P.A.W.S too.

P.A.W.S has three main modules. In the primary game you take on the role of the dog and wander through the garden exploring. You encounter cats, which you can chase around the garden, and bones, which you must eat to keep your energy level up. If you don't eat, you eventually run out of steam and fall sleep—then the game is over and you have to start again.

In the Anatomy of P.A.W.S you take a tour through the dog's innards, observing everything from the brain to the digestive system. The brain is the most entertaining area, where you find the dog's file cabinets with Wanted posters for neighborhood cats and postal delivery workers. There's also an AeroDog Flight Game, in which you are a dog that flies around and fetches bones to deliver to your hungry friends.

P.A.W.S's graphic images have a childlike appearance, but the animation is engaging and amusing. If you're in search of some off-the-wall entertainment, P.A.W.S is sure to be your best friend.　　KYLA K. CARLSON

Direct TO YOU

Uncover all the best buys with PC Computing's **Guide to the Direct Channel.** Plus, don't miss our **System Shortlist** for the lowdown on the most popular PC configurations.

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Computer Book Club	(614) 759-3666	297-299	——	
Computer Discount Warehouse	(800) 886-4239	290-293	144, 145	www.cdw.com
First Source International	(800) 308-9866	295	175	www.firstsource.com
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Worldwide Technologies	(800) 636-6792	286	251	www.worldwide technologies.com

System Shortlist

Your guide to the top PC configurations

Company/Product	Price*	CPU	RAM (MB)/L2 cache (K)	Hard Drive Capacity (GB)/Type	CD-ROM Speed	Graphics RAM/Chip Speed	Monitor Size
Acer America	(800) 230-2237						
Power Business Multimedia	$2,431	P133	16/256	1.26/IDE	8X	1D/64	15"
Power Minitower	$3,529	P166	32/256	2.0/IDE	8X	2V/64	15"
Acma Computers	(600) 786-6688						
Acma zPower 133v	$1,895	P133	16/256	1.2/EIDE	6X	1D/64	15"
Acma zPower 166	$2,195	P166	16/256	1.2/EIDE	6X	1D/64	15"
Acma zPower Pro 200	$3,205	Pro200	16/256	2.0/EIDE	8X	1D/64	15"
Advanced Logic Research	(800) 444-4257						
ALR Optima GT 5133	$2,399	P133	16/256	1.6/EIDE	8X	2D/64	15"
Evolution SST/166	$2,737	P166	16/256	1.6/EIDE	8X	2V/64	15"
Evolution Quad/200	$4,174	Pro200	32/256	1.6/EIDE	8X	4V/64	17"
Amax Engineering Corp.	(800) 800-6328						
Amax Pentium 133	$1,799	P133	16/256	1.6/EIDE	8X	2D/64	15"
Amax Pentium 166	$2,699	P166	16/256	2.0/EIDE	8X	2W/64	17"
Amax Pentium Pro 200	$3,299	Pro200	32/256	2.0/EIDE	8X	2W/64	17"
AST Research	(800) 876-4278						
Bravo LC 5133	$2,047	P133	16/256	1.2/IDE	6X	2D/64	15"
Bravo LC 5166	$2,397	P166	16/256	1.2/EIDE	6X	2D/64	15"
Advantage 829	$3,099	P200	16/256	2.0/IDE	8X	3D/64	15"
Bravo MS-T 6200	$3,800	Pro200	32/256	2.5/EIDE	8X	2W/64	15"
Austin Computer Systems	(800) 338-1571						
PowerPlus 133	$2,049	P133	16/256	1.6/EIDE	8X	2D/64	15"
PowerPlus 166	$2,699	P166	16/256	1.6/EIDE	8X	2V/64	17"
PowerPlus 200	$2,899	Pro200	16/256	1.2/EIDE	8X	2V/64	17"
Blackship	(800) 531-7447						
P-133 Centurion	$1,495	P133	16/256	1.6/EIDE	6X	2D/64	15"
P-166 Centurion	$1,995	P166	16/256	1.6/EIDE	6X	2D/64	15"
P-200 Centurion Pro	$2,495	Pro200	32/256	2.1/EIDE	8X	4W/64	17"
Canon Computer Systems	(800) 848-4123						
Innova Media Tower Model MT 9330	$2,259	P133	16/128	1.6/EIDE	6X	2D/64	15"
Innova Media Tower Model MT 9600	$3,199	P166	16/256	2.0/EIDE	6X	2D/64	15"
Compaq	(800) 345-1518						
ProLinea 5133	$2,049	P133	16/256	2.0/IDE	4X	1D/64	15"
ProLinea 5166	$3,249	P166	16/256	2.0/IDE	8X	2D/64	15"
Deskpro XL 6200 M2100/P0	$5,949	Pro200	16/256	2.0/EIDE	8X	2W/64	15"
Compulink Research	(800) 611-1555						
Infinity P133	$1,424	P133	8/256	1.1/EIDE	4X	1D/64	14"
Infinity P0S-166	$1,694	P166	16/256	1.7/EIDE	6X	2D/64	15"
Infinity PTS-A200	$3,324	P200	32/512	2.5/EIDE	8X	4V/128	17"
Comtrade Computer	(800) 969-2123						
Hyperspeed MPEG Multimedia	$1,775	P133	16/256	1.2/EIDE	6X	2D/64	15"
Multimedia MPEG Dream Machine	$1,985	P166	16/256	1.7/EIDE	8X	2D/64	15"
Multimedia Wide-SCSI Powerstation	$3,625	Pro200	32/512	2.0/SCSI	8X	2D/64	17"

*ESTIMATED STREET PRICE.

Company/Product	Price*	CPU	RAM (MB)/L2 cache (K)	Hard Drive Capacity (GB)/Type	CD-ROM Speed	Graphics RAM/Chip Speed	Monitor Size
CyberMax	(800) 443-9868						
Family1 P133	$1,349	P133	8/256	1.2/EIDE	6X	2D/64	15"
Office 9 p166+	$1,895	P166	16/512	2.0/EIDE	8X	2D/64	17"
Cyrix	(800) 340-7501						
Cyrix 6x86-P133 PC	$1,999	C133	16/256	1.6/EIDE	6X	2D/64	15"
Cyrix 6x86-P166 PC	$2,499	C166	16/256	2.5/EIDE	8X	2W/64	15"
Cyrix 6x86-P200 PC	$2,699	C200	16/256	2.5/EIDE	8X	2W/64	15"
Data Storage Marketing	(800) 543-6088, ext. 2051						
DataStor P5-133	$1,899	P133	16/256	1.6/EIDE	6X	2D/64	15"
DataStor P5-166	$2,599	P166	16/256	1.6/EIDE	6X	2D/64	17"
DataStor P6-200	$4,350	Pro200	32/256	2.1/ATA-2	8X	2D/64	17"
Dell Computer	(800) 885-5058						
Dimension P133t	$1,799	P133	16/256	1.6/EIDE	6X	2D/64	15"
OptiPlex GXMT 5166	$3,513	P166	16/256	2.0/EIDE	8X	2V/64	17"
Dimension XPS 200s	$2,849	P200	32/512	2.5/EIDE	8X	2V/64	17"
Dimension XPS Pro 200n	$3,029	Pro200	32/256	2.5/EIDE	8X	2V/64	17"
Digital Equipment Corp.	(800) 344-4825						
Venturis FX 5133	$2,451	P133	16/256	1.6/EIDE	6X	1D/64	15"
Venturis FX 5166s	$2,852	P166	16/256	1.6/IDE	6X	1D/64	15"
Celebris XL 6200	$7,464	Pro200	32/256	2.0/SCSI	4X	2D/64	15"
Evarex Systems	(800) 383-7981						
Step Premier P133	$2,395	P133	16/256	1.2/EIDE	8X	2W/64	15"
Step Premier P166	$3,995	P166	16/512	2.0/SCSI	8X	4W/64	17"
Step SP/Pro 200	$4,395	Pro200	32/256	2.0/EIDE	8X	4W/64	17"
Gateway 2000	(888) 888-2008						
Gateway P5-133	$1,899	P133	16/256	1.6/IDE	8X	2D/64	15"
Gateway P5-166	$2,699	P166	32/256	2.5/IDE	8X	2D/64	17"
Gateway P5-200	$2,799	P200	16/256	3.2/IDE	8X	2D/64	17"
Gateway G6-200	$3,899	Pro200	32/256	2.0/SCSI	4X	4W/64	17"
Hewlett-Packard	(800) 533-1333						
Vectra VL4 5/133 Model 1280 MM	$2,968	P133	16/256	1.08/IDE	4X	2W/64	15"
Vectra VL4 5/166 MT Model 1620 MM	$3,319	P166	16/256	1.28/IDE	4X	2W/64	15"
Vectra XU 6/200 Model 2000	$6,145	Pro200	32/256	2.0/SCSI	4X	4W/64	15"
HiQ Computer Systems	(800) 827-5836						
Saturn Station	$1,579	P133	16/256	1.2/IDE	6X	1D/64	15"
Apollo Station	$2,359	P166	16/256	2.5/EIDE	8X	2W/64	17"
Orion Station	$3,699	Pro200	16/256	2.0/SCSI	8X	2W/64	17"
IBM	(800) 426-4968						
PC 330	$2,644	P133	16/256	1.2/IDE	4X	1V/64	15"
PC 350	$3,469	P166	16/256	1.6/IDE	6X	2D/64	15"
PC 350	$4,073	Pro200	32/256	1.6/IDE	8X	2D/64	17"
Maximus Computers	(800) 962-2888						
Magna Media	$1,829	P133	16/256	1.6/EIDE	6X	2D/64	15"

*ESTIMATED STREET PRICE

Looking to buy a PC? Start with *PC Computing*'s guide to the most popular Pentium, Cyrix 6x86, and Pentium Pro configurations from today's top system makers. For up-to-the-minute pricing and product information plus online links to all these companies, check out *PC Computing*'s Web site at www.pccomputing.com. Compiled by Kedren Dillard

Company/Product	Price*	CPU	RAM (MB)/Cache (K)	Hard Drive Capacity (GB)/Type	CD ROM Speed	Express GAM/Type	Monitor Size
Magna Artist Media	$2,699	P166	16/512	2.0/EIDE	8X	2W/64	17"
Magna Artist Pro Multimedia	$4,899	Pro200	32/512	4.0/SCSI	8X	4V/128	17"
Micro Express	**(800) 989-8900**						
MicroFlex-PCI/133	$1,489	P133	16/256	1.2/IDE	4X	2D/64	15"
MicroFlex-PCI/166	$1,799	P166	16/512	1.2/IDE	4X	2D/64	15"
MicroFlex-PCI/200	$1,995	P200	16/256	1.2/IDE	6X	2D/64	15"
MicroFlex-PCI/Pro200	$2,995	Pro200	32/256	2.4/IDE	6X	2D/64	15"
Micron Electronics	**(800) 362-7309**						
Millennia P133	$1,789	P133	16/512	2.1/EIDE	8X	2D/64	15"
Millennia P166	$2,349	P166	16/512	2.1/EIDE	8X	2D/64	17"
Millennia P200	$2,499	P200	16/512	2.1/IDE	8X	2D/64	17"
Millennia Plus Pro 200	$3,749	Pro200	32/256	2.0/SCSI	8X	2D/64	17"
MidWest Micro	**(800) 445-2015**						
MidWest Micro P5/133	$2,015	P133	16/256	2.5/EIDE	6X	2D/64	15"
MidWest Micro P5/166	$2,699	P166	16/512	2.5/EIDE	8X	2V/64	17"
MidWest Micro Office Pro 200	$5,909	Pro200	64/256	4.0/SCSI	6X	4V/64	21"
MultiWave Technology	**(800) 234-3358**						
Ultra Power	$2,215	P133	16/512	2.0/IDE	8X	2D/64	17"
Ultra Power	$2,485	P166	16/512	2.0/IDE	8X	2D/64	17"
Pro Power	$2,985	Pro200	16/256	1.6/IDE	8X	2D/64	17"
NEC Technologies	**(800) 632-4636**						
PowerMate V133	$2,544	P133	16/256	1.6/IDE	6X	2D/64	15"
PowerMate P166	$2,809	P166	16/256	1.6/IDE	6X	3W/64	15"
PowerMate Pro200	$3,289	Pro200	16/256	2.0/IDE	8X	3D/64	15"
Nexar Technologies	**(888) 839-2772**						
Nexar Model 4000	$1,899	P133	16/256	1.6/IDE	6X	1V/64	15"
Nexar Model 9000	$2,399	P166	16/512	2.1/EIDE	8X	2V/64	15"
Packard Bell Electronics	**(800) 733-5858**						
Packard Bell Platinum Pro	$2,349	P133	16/256	1.6/IDE	4X	10/64	15"
Packard Bell Platinum Pro	$2,949	P166	24/256	2.0/IDE	6X	10/64	15"
Polywell Computers	**(800) 300-7689**						
Poly 5133P8	$2,095	P133	16/256	1.2/IDE	6X	2V/64	17"
Poly 5166P	$2,499	P166	16/512	2.1/IDE	6X	2V/64	17"
Poly P5200iP5	$2,755	P200	16/512	2.1/EIDE	6X	2D/128	17"
Poly P6-200TD	$3,650	Pro200	32/256	2.1/IDE	8X	4D/128	17"
ProGen Systems	**(800) 848-8777**						
Discover MPEG I	$1,489	P133	8/256	1.2/EIDE	6X	2D/64	15"
Discover MPEG II	$1,896	P166	16/256	1.6/IDE	8X	2D/64	15"
Nova	$3,289	Pro200	16/256	1.6/IDE	8X	2D/64	17"
Quantex Microsystems	**(800) 787-8686**						
QP5/133 M-3	$2,199	P133	16/512	1.6/EIDE	8X	2D/64	15"
QP5/166 SM-2	$2,747	P166	32/512	2.5/EIDE	8X	2W/64	17"
QP5/200 SM-2	$2,989	P200	32/512	2.5/6/8	8X	2W/64	17"
QP5/200 WS-2	$4,199	Pro200	32/512	4.0/SCSI	8.7X	4V/64	21"
Robotech Corp.	**(800) 533-0633**						
Cobra XLT/2P133	$3,247	P133	16/512	2.1/IDE	8X	2D/64	17"
Cobra XLT/2P166	$4,886	P166	16/512	2.1/IDE	8X	4V/64	17"
Cobra XLT/2P200	$5,186	P200	16/512	2.1/IDE	8X	4V/64	17"
Cobra XLT/P200	$8,142	Pro200	32/512	2.1/IDE	8X	8V/64	21"
Swan Technologies	**(800) 584-8743**						
Performance 133 MHz	$1,709	P133	16/256	1.6/EIDE	8X	2D/64	15"
PowerHouse 166 MHz	$2,499	P166	16/256	2.5/EIDE	8X	2D/64	15"
PowerHouse 200 MHz	$3,199	P200	32/512	2.5/EIDE	8X	2D/64	15"
Performance Pro 200 MHz	$4,099	Pro200	32/256	2.5/EIDE	8X	2D/64	17"
Tagram System	**(800) 824-7267**						
Thunderbolt Office Station	$1,525	P133	16/256	1.6/IDE	4X	2V/64	15"
Thunderbolt Virtual Studio	$3,595	P166	16/256	4.3/SCSI	8X	4W/64	17"
Thunderbolt Corporate /T6	$4,295	Pro200	32/512	4.3/SCSI	6X	2W/64	17"
Tri-Star Computer Corp.	**(800) 844-2893**						
Multi-CAD	$1,595	P133	16/256	1.2/EIDE	8X	2D/64	15"
Tri-CAD	$2,285	P166	16/256	1.6/EIDE	8X	2D/64	17"
Tri-CAD 200	$2,495	P200	32/256	1.6/EIDE	8X	2D/64	17"
StarStation	$3,495	Pro200	32/512	2.0/EIDE	8X	2V/64	17"
US Computer Direct	**(800) 787-4847, ext. 32**						
Freedom LX	$1,546	P133	16/256	1.6/EIDE	6X	2D/64	15"
Freedom LX	$1,770	P166	16/256	1.6/EIDE	6X	2D/64	15"
Freedom Gold	$2,499	P200	16/256	2.0/EIDE	8X	2D/64	17"
Microstar Pentium Pro	$3,993	Pro200	32/256	2.0/EIDE	6X	2V/64	17"
Xi Computer	**(800) 432-0486**						
P133 MTower SP	$1,949	P133	16/512	1.7/EIDE	8X	2D/64	17"
P166 MTower SP	$2,349	P168	16/512	1.7/EIDE	8X	2D/64	17"
P200 MTower SP	$2,699	P200	16/512	1.7/EIDE	8X	2D/64	17"
Pro200 MTower SP	$3,249	Pro200	16/256	2.5/EIDE	8X	2D/64	17"
Zenith Data Systems	**(800) 582-0524**						
Z-Station GT 500 Series	$2,471	P133	16/256	1.6/EIDE	8X	1S6/64	15"
Z-Station GT 500 Series	$3,361	P166	16/256	2.1/EIDE	8X	1S6/64	17"
Z-Station GT 500 Series	$3,407	Pro200	16/256	2.1/EIDE	8X	2S6/64	17"
Zenon Technology	**(800) 899-6119**						
Supermedia Gx	$1,629	P133	16/256	1.6/EIDE	6X	2D/64	15"
Supermedia Gx	$1,839	P166	16/256	1.6/EIDE	6X	2D/64	15"
Zenon Client Server Workstation	$3,999	Pro200	32/256	4.0/SCSI	8X	2W/64	17"

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SEPTEMBER 1996

PREMIER

INPUT DEVICES

CIRCLE 424 ON READER SERVICE CARD

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▶ Create Windows self-extractor

▶ Self-extractor can span multiple diskettes

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▶ Integration with Windows 95 & NT Explorer

▶ Plus additional features

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Put Compression Into YOUR Application

The PKWARE Data Compression Library® products allow you to incorporate data compression technology into your software applications. The application program controls all the input and output of data, allowing data to be compressed to or extracted from any device or area of memory.

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UTILITIES

So**hot**

Cheap Speed
Following the ever-falling price for fast CD-ROM drives, NEC's internal eight-speed MultiSpin 8V drive (below) hooks up to any IDE port and speed-reads data at 1,200KBps—all for $149.

MultiSpin 8V / NEC / (800) 632-4636 / $149 est. street price / *Reader Service No. 779*

Drive Free
Wish you could play your favorite game on the road, but your laptop doesn't have a CD-ROM drive? Logicraft Virtual CD-ROM copies and compresses all the data from a CD-ROM to your hard drive so you have access to the information wherever you go.

Virtual CD-ROM / Logicraft Information Systems / (800) 880-5644 / $25 est. street price / *Reader Service No. 780*

Scan It All
Plustek OpticPro 4800P is a small, flatbed image scanner that reads from 256 grayscale to 17 million colors. And with its included OCR and document management software, it's ready for any document or image.

OpticPro 4800P / Plustek / (800) 685-8088 / $369 est. street price / *Reader Service No. 781*

Keep in Touch

On the road, in the air, working from home—no matter where you are, it's essential to keep connected with mission control. Here are some new tools to crank up your communication skills. . . . **See Eye to Eye** The slots on your PC can fill up quickly with internal modems, CD-ROM drives, and video cards. Elsa's Elsavision (below) packs ISDN, MPEG-1, and videoconferencing into one PCI card. The card transfers data at up to 128Kbps (perfect for videoconferencing), includes Intel ProShare Premier, a headset, and an analog video camera. And when you're done gabbing, the card's MPEG-1 support makes it a nifty add-on for multimedia fanatics ($1,649 est. street price; 800-272-3572). . . . **Get the Word Out** Sending mass e-mail is an efficient and cheap way to communicate. But if the recipients see that the message was sent to several people they might not read it. Alpha Software NetMailer works as

a liaison between your contact database and e-mail package. Import the e-mail addresses, type your message, hit the Send button, and each recipient gets an e-mail addressed only to them ($69 est. street price; 800-451-1018). . . . **Onsite Meeting** Microsoft's new NetMeeting 1.0 (above right) lets you collaborate with your coworkers through audio and a shared whiteboard via a regular analog modem. This conferencing tool also lets you share applications so you aren't tied to collaborating with just its whiteboard tools. NetMeeting is available for a free trial at Microsoft's Web site, www.microsoft .com/ie/conf/ (free; 800-426-9400). . . .

Board Meeting: NetMeeting lets you talk and share data across the Internet.

More Power to You
Creative Labs Phone Blaster 28.8 PnP is a top-of-the-line analog modem with plenty of frills, including a Sound Blaster 16 card and Microsoft Phone, which turns the modem into a full-duplex speakerphone. Other cool components include remotely accessible voice mail and NetSpeak WebPhone ($269 est. street price; 800-998-5227). **JACK LYON**

Reader Service Numbers: Elsavision, 782; NetMailer, 783; NetMeeting 1.0, 784; Phone Blaster 28.8 PnP, 785

SO DEDUCT IT MICROFLASH 2

What you tell your accountant:
"This printer attaches to my belt and goes anywhere with me and my PDA. When I want to leave someone a message at their desk, I just print it out. I can also label my office equipment."

What you tell your friends:
"I'll never have to write down my phone number on a cocktail napkin again."

microFlash 2 / O'Neil Product Development / (714) 458-1234 / $995 est. street price / *Reader Service No. 786*

323

Banish the Paper Pile

Wouldn't it be nice to get that pile of paper faxes, magazine clippings, business cards, and receipts off your desk and onto your hard drive? The completely paperless office is still a mirage, but you can make a dent in your stack with document scanners. They scan documents in the blink of an eye, take up little desk space, and are packed with powerful software that lets you fax, store, or translate any scanned document into editable text.

We rounded up five of the best and most versatile document scanners around: the Visioneer PaperPort Vx, Logitech PageScan Color, Microtek PageWiz, Umax PageOffice Dual, and

Best Buy: The PaperPort Vx is the easiest way to feed paper to your PC.

PaperPort Vx / Visioneer / (800) 787-7007, (415) 812-6400 / $299 est. street price / *Reader Service No. 787*

Mustek Paragon Page Color.

The models our usability testers examined are capable of at least 200-dpi true optical resolution and as high as 1,200-dpi interpolated resolution. The three monochrome scanners (PaperPort Vx, PageWiz, and PageOffice Dual) come with desktop management software. Feed a document to

the scanner and the control center pops up automatically. File scanned images or send them to document management tools like OCR or fax software.

Paperless Powerhouse

For comprehensive document management, the Visioneer PaperPort Vx stands alone. It takes little effort to set up, works flawlessly, and reproduces high-quality images and text with an optical resolution of up to 400 dpi. And even though it hooks up to either a slow serial or parallel port, it was one of the fastest scanners we tested.

The PaperPort's biggest strength is its software, which has tight links between it and 100 popular desktop applications, like Caere OmniPage, Delrina FaxPro, Microsoft Word—the list goes on. Each app works perfectly with the scanner. The PaperPort also has six different scan modes that help you adjust for scanning challenges like business cards, color photos, and magazine articles.

Finally, the PaperPort comes bundled with several applications, including Corex CardScan SE for converting your business card collection

into a contact database. It also comes with PictureWorks Technologies' PictureWorks Copier software, which prepares documents for volume copying or for putting multiple documents on a single page. The PaperPort's resolution is solid, its scans are fast, and it includes the best software of any document scanner on the market. This is the document scanner to get—unless you need color.

Color Scan

With color ink-jet and laser printers becoming all the rage these days, lots of people want a color document scanner. And at a competitive price to monochrome document scanners, Logitech PageScan Color could be the right choice for you. As well as being a regular document scanner, the PageScan becomes a handheld scanner if you simply take off its base. Set it down on a flat surface, hit the Scan button, and it scans images at up to 400-dpi optical resolution.

So should you even consider a black-and-white unit? Well, the PageScan is slower, its file sizes are considerably bigger, and our usability testers weren't satisfied with the scanner's

Snap On, Snap Off: The PageScan Color serves as either a desktop or handheld color scanner.

PageScan Color / Logitech / (800) 231-7717, (510) 995-8500 / $399 est. street price / *Reader Service No. 788*

software. For simple document management the PageScan comes with Xerox's excellent OCR software, TextBridge. Also included is DocuMagix PaperMaster SE for organizing scanned documents, which our testers found harder to use than PaperPort's software. And there's no document management software beyond that—fax and image editing applications aren't included.

However, our testers were impressed with the PageScan's versatile scanning and its low price.

Paper-free for Pennies: PageWiz offers quick scanning at a low price.

PageWiz / Microtek Lab / (800) 654-4160, (310) 297-5000 / $129 est. street price / *Reader Service No. 789*

It picks up all voices in a 360 degree range.

It provides two-way natural conversation.

It improves desktop videoconferencing.

It enhances Internet voice calls.

It performs regular conference calls.

It makes coffee for the entire office.

(We just wanted to see if you were paying attention.)

Introducing the CS1050 ConferenceLink™ Multimedia Speakerphone for about $400.
Okay, so you'll have to make the coffee yourself. But when it comes to enhancing total office communications, the CS1050 pretty much takes care of everything else.

It's an amazing new breed of Performance™ Telephone from U.S. Robotics. And for only around $400, it means anyone can turn even the smallest office into a fully functional conference room.

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Plus, no matter how many people are packed into an office, even if they're standing or pacing, everyone can be heard loud and clear through its three powerful, built-in microphones.

And the CS1050 handles more than just regular conference calls. Experience full duplex videoconferencing simply by connecting the CS1050 to the full duplex sound card in your PC/desktop videoconferencing system. Or, have full duplex Internet voice calls by connecting to your PC's full duplex sound card while running Internet telephony software.

As the first ever multimedia speakerphone, the CS1050 is a remarkably versatile communications device. And while it may not make coffee, it will make you more productive.

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A Performance™ Telephone From U.S. Robotics.

US Robotics®

Frugal Power: The PageOffice Dual is a fast scanner, at a reasonable price.

PageOffice Dual / Umax / (800) 562-4000, (510) 651-4000 / $199 est. street price / *Reader Service No. 790*

abilities, and found that it reproduced color documents remarkably well.

Scanning Cents So maybe you're reluctant to invest money in a device you're not sure you'll use? At $129, Microtek PageWiz is the

low-price leader of the bunch. It's also a quick and solid document scanner with good image quality. Our usability testers had no trouble setting it up, and the included Microtek PageSuite software makes it easy to fax and store digital documents. It also comes with Caere OmniPage OCR software.

Once you get into serious scanning, however, you'll see some quality trade-offs. It has few scanning options, which results in unsatisfactory scanning of complex documents like newsletters with color photos. On the plus side, the PageWiz is remarkably small (the smallest unit of the group), has an outstanding price, and is ideal for anyone who needs a no-frills document scanner.

Big Office Umax PageOffice Dual has some high-power components, but it doesn't hold a candle to the Visioneer PaperPort Vx. The PageOffice Dual is bigger and requires a SCSI-2 port. It does have some saving graces, however: It's fast, reproduces documents fairly well (about the same quality as the PaperPort Vx), and it costs $100 less than the PaperPort Vx.

The PageOffice Dual also includes some excellent software. Its OCR software was one of the most accurate of the group, and its image editing software proved to be the most powerful. The scanner's main software, Umax PageManager, offers the usual—faxing, copying,

and digital storage— but our testers found that it wasn't as easy to use as the software in

Image Heavy: The Page Color is a solid color scanner, but the software lacks integration.

Paragon Page Color / Mustek / (800) 468-7835, (714) 247-1300/ $249 est. street price / *Reader Service No. 791*

Feed: In a personal document scanner, a set of rollers sends the document through the scanner. These rollers are spring-loaded and automatically adjust to the thickness of a document.

Scan: As the document travels over the rollers, it passes under the scan head. The scan head's light-emitting diodes shine on the paper's surface.
The light is reflected back onto a light-sensitive chip in the scan head called a charge-coupled device (CCD).

Process: The CCD records the light information and sends it through an analog-to-digital converter. The digital information is then sent to the scanner software for processing.

Scan and Save

	Visioneer PaperPort Vx	Logitech PageScan Color	Microtek PageWiz	Umax PageOffice	Mustek Paragon Page Color
Maximum Resolution	400 dpi	200-dpi color, 400-dpi gray	300 dpi	300 dpi	1,200-dpi interpolated
Desktop Management Software	Yes	No	Yes	Yes	No
PC Connection	Serial/parallel port	Parallel port	Parallel port	SCSI-2	ISA slot

either the Visioneer PaperPort Vx or the Microtek PageWiz.

Cool Colors Mustek Paragon Page Color is a bit bigger than the other scanners, but it still fits comfortably on your desk. While it can't turn into a handheld scanner like Logitech PageScan, it produces slightly better color quality and costs $150 less.

Unfortunately, you'll probably have to use the money that you saved to buy better document management software. Our usability testers struggled to get the Paragon Page Color up and running, and its sparse manual didn't help much. While the scanner includes the basics, like OCR and image editing programs, these apps are scattered across your hard drive when you install them. If you want an inexpensive color document scanner and can live without the extras, check out the Paragon Page Color.

Scanning Smarts So which document scanner will help you reduce your paper pile the best?

The Visioneer PaperPort Vx holds the top spot for document management. The scanner is fast and accurate, and its software is unmatched. If you need color scanning, Logitech PageScan Color is a versatile unit, but its software needs an upgrade. For solid performance at a bargain price, the Microtek PageWiz packs in a lot for its low price. Finally, if you want an inexpensive color document scanner with no frills, the Mustek Paragon Page Color is for you. **MIKE HOGAN**

DECISION MAKER WHICH DOCUMENT SCANNER IS FOR YOU?

1 Choose the factor that's most important. **2** What's the next most important factor? **3** What else is important? **4** For your needs, the best product to buy is ...

Usability
- Price
  - Document Management → Umax PageOffice Dual
  - Size → Microtek PageWiz
- Image Quality
  - Document Management → Visioneer PaperPort Vx
  - Size → Visioneer PaperPort Vx

Price
- Usability
  - Document Management → Umax PageOffice Dual
  - Size → Microtek PageWiz
- Image Quality
  - Document Management → Visioneer PaperPort Vx
  - Size → Logitech PageScan Color

Image Quality
- Usability
  - Document Management → Visioneer PaperPort Vx
  - Size → Microtek PageWiz
- Price
  - Document Management → Visioneer PaperPort Vx
  - Size → Microtek PageWiz

when it's gotta be picture perfect...

it's gotta be SmartPage.

The toughest test of any color scanner is how well it captures the sharp details and rich colors of photographs. If it can do that, the rest is easy.

EasyPhoto SmartPage scans photos best. Its unique ClearScan™ technology and high resolution scanning make it easy to add picture-perfect color photos to flyers, make your letters more personal and your presentations more persuasive. You can even send your photos online in e-mail messages or use them in your web-page. Scan photos, text and graphics from wallet size up to 8½ x14" to edit, file, fax or copy. Trust EasyPhoto SmartPage to give you the whole picture for just $299. See your retailer or call today!

1. Scan photos, text and graphics quickly and easily at up to 1200 dpi resolution.

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Index PRODUCTS FEATURED IN THIS ISSUE:

For more information, circle the corresponding reader service number on the reply card on page 331.

WEB ADVERTISING FILTERS

Life in the **Fast Lane**

When your favorite TV show takes an advertising break so do you, by changing the channel or wandering into the kitchen. Thanks to the advent of the VCR, you can tape your favorite programs and then simply fast-forward through the commercials. But when your favorite ad-supported Web site serves up a blinking banner touting some irrelevant gizmo or gadget, you sit there waiting because on the Web you can't change the channel. You're paying for these ads in one way or another, be it in connection fees or wasted time. Annoyed? PrivNet's Internet Fast Forward (IFF) is just what you're looking for, and it could very well turn the Web's advertising model on its ear.

IFF is a customizable plug-in that filters out banner ads, blinking text, and user-specified graphics. It also blocks HTML cookies—little bits of code that tell Webmasters who visited their pages, which browser they used, which pages they requested, and just about anything else he or she wants to know about visitors. Banner ads and HTML cookies are two foundational elements of Web advertising, and IFF lets you control them both.

PrivNet has posted IFF as a free download during beta testing. It comes in both Windows 95 and Windows NT versions, both of which are available for Netscape Navigator only. Launching IFF in turn launches Navigator, where a few icons have been added to the toolbar. These icons include a pair of red fast-forward arrows indicating the number of ads filtered and a gingerbread man–shaped icon that displays the number of cookies blocked. Clicking on either icon reveals a preferences menu where you can customize filters for banners, blinking text, and cookies. The beta version we looked at was a bit shaky, but the bugs should be fixed in the final version.

Don't want to wait for advertisements to load on your low-bandwidth Internet connection? Download a free beta copy of Internet Fast Forward at www.privnet.com or link to it via our Web site at www.pccomputing.com.

Take the High Road: Tired of advertising banners and blinking text slowing your Web experience? PrivNet's Internet Fast Forward filter utility brings you ad-free surfing.

1,001 FREE DOWNLOADS: September Update

INTERNET TOOLS

WS_FTP

Move files or entire subdirectories with WS_FTP's simple drag and drop—sans arcane FTP command switches. A split-screen view lets you see your local drive and the remote drive simultaneously.

File: WS_FTPLE.ZIP
Size/Time*: 468K/2 minutes

Microsoft Internet Explorer 3.0

Try Microsoft's all-new Internet Explorer 3.0. It handles HTML 3.2 and borderless frames, and lets you open Microsoft documents from within the browser.

File: MSIE30B1.EXE
Size/Time*: 2864K/11 minutes

Map This

Spruce up your Web page by creating image maps quickly and easily with Map This. It supports CERN, NCSA, and CSIM/HTML data formats, and handles GIF and JPG files too.

File: MTBETAR5.EXE
Size/Time*: 902K/5 minutes

StuffIt Expander

If you're looking for an easy-to-use expansion utility, search no more. StuffIt Expander is a drag-and-drop program that supports SIT, ARJ, ARC, GZ, ZIP, UU, UUE, and HQX file formats.

File: SITEX10.EXE
Size/Time*: 346K/2 minutes

Java Support for Explorer 3.0

Is your Web browser Java-enabled? Once you've downloaded your free copy of Internet Explorer 3.0, check out Microsoft's Java Support for Explorer 3.0 to enliven your Web experience.

File: IE30JAVA.EXE
Size/Time*: 1675K/8 minutes

GAMES

Descent II Panic Levels

If you've already completed all 30 levels of Descent II, don't panic—download these 10 new levels. Built by the original expert designers and made for multiuser play, they include Anarchy and Capture the

*ESTIMATED DOWNLOAD TIMES ARE CITED AT 28.8KBPS. ACTUAL TIMES VARY. ALL FILES ARE AVAILABLE AT WWW.PCCOMPUTING.COM

Flag. You can even combine all 10 levels to create one massive new one. And watch for the latest levels on our Web site.

File: D2LEVELS.ZIP
Size/Time*: 251K/1 minute

PacMan

Great games never die—and PacMan proves it. The all-time favorite video game is back in an easy-to-set-up Windows 95 version.

File: ROATRIAL.EXE
Size/Time*: 2110K/10 minutes

Indiana Jones and His Desktop Adventures

Battle blood-hungry snakes and militant local bandits in your trek across Central America with Indiana Jones. This new fast-paced Windows 95 adventure game pits you against dangerous terrain and Nazis in your search for ancient artifacts.

File: INDYJ.ZIP
Size/Time*: 1040K/5 minutes

IndyCar Racing II

If you've always wanted to drive an Indy car, now's your chance with IndyCar Racing II from Papyrus—no special license required. Download this interactive demo and choose between two race tracks to blast around at 200 mph and faster. Indy-Car Racing II is as realistic as it gets.

File: ICR2DEMO.EXE
Size/Time*: 6700K/31 minutes

Trophy Bass

Cast your fly rod and experience bass fishing without leaving the comforts of your PC. Think of it as virtual bass fishing—you control the reel and choose where to cast. Once you catch your bass, you can throw it in the live well or release it.

File: TBASSD.EXE
Size/Time*: 18.3K/5 seconds

Largemouth Bass   4 lb. 14 oz.

Package Deals: Everything in One Place

Macromedia Shockwave

To experience the interactivity of *PC Computing*'s Shockwave site, you'll need the Shockwave plug-in from Macromedia. This package includes these Shockwave utilities—Shockwave for Director, Shockwave for FreeHand, and Shockwave for Authorware. Use them from within your Web browser to enjoy interactive multimedia created in any of these Macromedia products.

File: N32Z000S.EXE **Size/Time*:** 2475K/12 minutes

Netscape Power Pack 2.0

Upgrade your bare-bones Netscape Navigator browser with Netscape Power Pack 2.0. Power Pack includes a virus scanner, a spell-checker, a site-monitoring utility, and a chat feature. If you're using Navigator or Navigator Gold, you'll want Power Pack.

File: PP2032B2.EXE **Size/Time*:** 6876K/32 minutes

Java Station

You've undoubtedly heard the buzz about Java. Now create ate some Java applets of your own with Scott Kaufman's Java Station. If you're using Sun Microsystems' Java Development Kit, Java Station lets you compile and edit Java text files.

File: JAVAS99O.ZIP **Size/Time*:** 150K/1 minute

PaperMaster

Looking for a top-notch personal document-management package? DocuMagix PaperMaster is the ultimate desktop filing cabinet. Paper-Master lets you easily organize scanned files, faxes, e-mail, and online documents.

File: PMTD.EXE
Size/Time*: 2028K/10 minutes

PowerDesk

You can never have too many Windows 95 desktop shell utilities. If you're not satisfied with the look and feel of bare-bones Windows 95, check out PowerDesk, an enhancement utility that lets you customize your desktop.

File: PDLEVAL.ZIP
Size/Time*: 714K/4 minutes

VirusScan for Windows 95

Are you practicing safe computing? To protect your system, download McAfee Associates' VirusScan for Windows 95. It keeps your computer safe from viruses with endearing names like Nemesis.

File: S95I110E.ZIP
Size/Time*: 861K/5 minutes

QuickTime 2.0 for Windows

Add Apple's QuickTime 2.0 for Windows player to your system and enjoy integrated video, sound, graphics, and animation from your desktop.

File: QCKT32.ZIP
Size/Time*: 1599K/8 minutes

PolyView for Windows NT

If you're looking for a solid graphics editor for Windows NT, check out PolyView. It supports GIF and JPEG image formats.

File: POLYV170.ZIP
Size/Time*: 179K/1 minute

BusinessCards/32

Organize your life with Business-Cards/32 for Windows 95 and

Windows NT. BusinessCards/32 is a free-form database program for tracking any type of textual information.

File: 32BCR400.ZIP
Size/Time*: 322K/2 minutes

EDUCATION

Guitar Teacher 3.0

Guitar Teacher 3.0 for Windows 95 walks you through the fundamental elements of chords and more.

File: GTRWN300.ZIP
Size/Time*: 1342K/6 minutes

Number Tutor

Help your PC-savvy children (aged 2 to 5) learn the basics of numbers with Number Tutor, a Windows-based learning application.

File: NUMTUT.ZIP
Size/Time*: 679K/4 minutes

Physics Guide

Delve deeper into the realms of physics with Physics Guide. This Windows 95 educational program walks you through all the important points of matter and motion.

File: PHYS1_32.ZIP
Size/Time*: 2225K/10 minutes

Inter.net is edited by Rich Schwerin. Links to all Free Hits downloads are available at www.pccomputing.com. Contributors: Ed Bott, Adam Meyerson (Free Hits), and Ron White. Send Inter.net secrets to Rich Schwerin at Rich_Schwerin@zd.com.

Until kids stop showing up here,

For a current list of missing children visit the National Center for Missing and Exploited Children's web site at www.missingkids.org

We need you to keep showing up here.

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Over 2,300 children are reported missing every day. With the help of the technology industry, the Micrografx Chili for Children Cook-Off has changed the way America searches for its missing children. Together we have helped raise the recovery rate to 89% (a 20% increase)!

Much more remains to be done. Join us during COMDEX/Fall in Las Vegas, NV on Tuesday, November 19th for the industry's premier event. Your corporate sponsorship will make a difference. (You'll also have a ball!)

Call Kate Potts at 214-994-6413 for sponsorship information (katep@micrografx.com). Sponsorships are available from $3,500 - $30,000. For general information, call the Chili Hotline at 800-357-7255 or visit our website at www. micrografx.com/chili.html

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MISSING & EXPLOITED
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came directly from an authorized source? If not:

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All You Need to **Surf**

BY RICH SCHWERIN

So many Internet products, so little time. Whatever you do, don't panic:
We reviewed 18 essential Net tools including browsers, utilities, applets, and
plug-ins. To keep up with the flood of new offerings, our editorial team scours
the Web to bring you daily updates on an array of powerful tools. Want 'em all?
Surf to www.pccomputing.com.

Internet Explorer 3.0: Don't just browse the Web, explore it with Microsoft's free Internet Explorer 3.0.

Netcast: Tune in to a dozen streaming multimedia channels covering sports, music, and news with the Netcast viewer.

WebEx: Save time and money with Traveling Software's WebEx, an offline browser that saves sites locally.

PRODUCT	Verdict
Adobe Systems Acrobat Reader 3.0 Free (800) 833-6687 *Reader Service No. 796*	★★★★☆ Enjoy the rich, complex, graphical designs of portable document format (PDF) files online with Adobe's free Acrobat Reader 3.0. Acrobat now supports integrated viewing, and it searches PDF files from within most Web browsers.
Blue Sky Software Web Office $399 est. street price (800) 571-9764 *Reader Service No. 797*	★★★★★ Building the perfect Web site just got a whole lot easier with Web Office, a complete Internet and intranet authoring suite. It includes a graphics editor, an image map creator, a graphics library, site diagnostic and management utilities, and Blue Sky's market-leading Help-to-HTML Converter.
Frontier Technologies Intranet Genie Price not set (800) 929-3054 *Reader Service No. 798*	★★★★☆ Construct your intranet with ease using Intranet Genie from Frontier Technologies. Genie includes SuperWeb Server for Windows NT, administration tools, forms-based applications for things like expense reports, Verity's Topic search engine, and other intranet utilities.
Microsoft Internet Explorer 3.0 Free (800) 426-9400 *Reader Service No. 799*	★★★★★ Microsoft Internet Explorer 3.0 supports everything Navigator does—including Frames, plug-ins, and Java—plus ActiveX and ActiveVRML. And unlike Netscape's $49 shareware model, Internet Explorer is yours free—forever.
Netcast Communications Netcast Free (212) 248-2989 *Reader Service No. 800*	★★★★★ Developed with AT&T's multimedia-compression technology, Netcast is one of the first Web-based entertainment networks. It offers a dozen channels covering music, politics, sports, and news. The free Netcast viewer streams live multimedia to your desktop.
Quarterdeck WebCompass Professional 2.0 $50 est. street price (800) 354-3222 *Reader Service No. 801*	★★★★☆ Effortlessly find exactly what you're searching for on the Net. WebCompass Pro's intelligent agents hit multiple search sites simultaneously and retrieve indexed, ranked results. More than a search engine, WebCompass Pro is an essential information-gathering and analysis tool.
Traveling Software WebEx $30 est. street price (800) 343-8080 *Reader Service No. 802*	★★★★☆ Take your favorite Web sites with you on the road with WebEx, Traveling Software's instant offline Web-access tool. Formerly known as Milktruck Delivery, WebEx downloads user-specified sites for local browsing, saving you time and money.
The Wall Street Journal Interactive Edition $49 for annual subscription (800) 369-2834 *Reader Service No. 803*	★★★★☆ Find you just can't get enough of the *Wall Street Journal?* Then subscribe to the *Journal's* Interactive Edition. It's backed 24 hours a day by a dedicated staff of more than 30 editors, bringing you up-to-the-moment business and market news you simply won't find in the paper.

★★★★★ *Excellent* ★★★★ *Good* ★★★ *Acceptable* ★★ *Poor* ★ *Unacceptable*

**Click Click
<Esc> @10,20
Click Click
Click <Esc>
#@!? Redraw
Click <Tab>   Click
<Tab> 14.3   Click
Click <Esc>   Click
Click + Drag   Click
Crash #@!?   Click**

• Other 2D
  Drawing Tools

• Imagineer™
  Technical

Draw your own conclusion.

Imagineer's easy-to-use drawing tools and intuitive on-screen feedback render other drawing programs obsolete. Intergraph Imagineer™ Technical lets you create precision 2D drawings with half the mouse-clicks, keystrokes and command changes of most drawing software.

Designed for Windows® 95 and Windows NT®, Imagineer makes it easy to combine drawings with text files, spreadsheets, presentations

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INTERGRAPH
Imagineer Technical

Precision drawing made easy.

Microsoft
OFFICE
Compatible

Designed for
Microsoft®
Windows®95

INTERGRAPH
SOFTWARE SOLUTIONS

PRODUCT

Verdict

Worlds Chat 1.0 Demo
Free
(800) 780-1613
Reader Service No. 804

★★★★☆ Enter the world of multiuser chat with Worlds Chat 1.0 Demo. Choose an avatar—or design your own—and converse with people from around the world as you interact with other avatars in surrealistic 3-D scenes.

Accent Software Internet with an Accent
$99 est. street price
(800) 535-5256
Reader Service No. 805

★★★★☆ Internet with an Accent lets you browse, publish, and e-mail in more than 30 languages, and it even supports character sets for Cyrillic, Hebrew, Arabic, and kanji. Instead of translating other languages to English (as does Globalink's Web translator), Internet with an Accent converts fonts and character sets.

CompuServe Wow
$17.95 per month for six-user unlimited access
(800) 943-8969
Reader Service No. 806

★★★★☆ Looking for an online service the whole family can enjoy? CompuServe's Wow is a consumer online service with bulletproof parental controls and content geared for families. A CD-ROM-based service, Wow blends local content with online updates, resulting in a rich multimedia experience.

Iconovex EchoSearch
$49 est. street price
(800) 943-0292
Reader Service No. 807

★★★★☆ Iconovex's EchoSearch is the first Java-based meta search tool we've seen that improves the accuracy and speed of your Net searches. Use Boolean queries with EchoSearch to hit multiple search sites at once. EchoSearch retrieves well-indexed results on the fly. Try EchoSearch and forget about gee-whiz Java animations.

Media Synergy @loha
Price not set
(416) 369-1100
Reader Service No. 808

★★★★☆ Bring otherwise boring e-mail to life with @loha, an easy-to-use multimedia and animation tool from Media Synergy. @loha lets you attach compressed animations to e-mail messages you send via Qualcomm Eudora, Microsoft Exchange, cc:Mail, Prodigy, or America Online.

O'Reilly & Associates WebBoard
$99 est. street price
(800) 998-9938
Reader Service No. 809

★★★★☆ Are people talking on your Web site? Add multithreaded messaging to your Windows NT-based, Common Gateway Interface-compliant Web server with O'Reilly & Associates' WebBoard. WebBoard turns your site into an online conference center with support for public and private forums.

Starfish Software EarthTime
$19 est. street price
(800) 765-7839
Reader Service No. 810

★★★★☆ Keeping track of time on the global Internet can be frustrating, and converting from Greenwich mean time is downright confusing. Starfish Software's EarthTime lets you track the local times of up to eight locations from a selection of more than 375 cities around the world.

Brooklyn North Software Works HTML Assistant Pro 2
$99 est. street price
(800) 349-1422
Reader Service No. 811

★★★☆☆ Edit Web pages with ease using the latest version of HTML Assistant Pro, the first commercial Web-page editor. It includes a spell-checker, a floating tool bar, support for tables and forms, and other features.

e.g. Software WebTrends
$279 est. street price
(503) 294-7025
Reader Service No. 812

★★★☆☆ Webmasters who need comprehensive Web-site analysis should take e.g. Software's WebTrends for a spin. WebTrends delivers essential site-traffic statistics and demographic marketing information for any Web server. Find out who's hitting your site and which browser they use.

Juno Online Services Juno
Free
(800) 654-5866
Reader Service No. 813

★★★☆☆ If you don't mind a little advertising and an occasional junk message, you can enjoy free e-mail with Juno, a Windows-based e-mail service. Send and receive as much e-mail as you like absolutely free.

★★★★★ *Excellent* ★★★★ *Good* ★★★ *Acceptable* ★★ *Poor* ★ *Unacceptable*

What will *you* do today?

Inter.net

Online Law and Order

BY RICH SCHWERIN

Understanding the legal system can mean the difference between business success and failure. And while you don't want to rely on the Internet as the only source for your legal knowledge, it's a great place to start (and cheaper than your lawyer). From arbitration to education, we've gathered the best legal Web sites for you.

CONSUMER ISSUES

Having trouble with a merchant or landlord? Stuck with a lemon car? Try surfing around for legal assistance. In many cases you'll find free help online.

The Consumer Law Page Peruse hundreds of consumer product information brochures, plus advice on small-claims court and class-action lawsuits.
seamless.seamless.com.80/talf/txt

The Lemon Car Page Did you buy a lemon? Hit this site to learn about Magnuson-Moss, a federal law that gives consumers substantial rights in dealing with manufacturers of lemon cars.
www.mndspring.com/~wf1

Legal dot Net Here's a wealth of legal information on divorce, child support, and other issues, plus a pro bono question-and-answer section.
www.legal.net

Lawyer Find Looking for a lawyer? Scan this state-by-state referral guide to lawyers and free and low-cost legal aid.
www.notice.com/lawyerfind.html

EMPLOYMENT

Employees and employers alike want to know their rights. From wrongful termination to sexual harassment, here's a collection of employment-related sites.

NELA The National Employment Lawyers Association manages this site filled with affirmative-action facts, summaries of recent decisions, and legal referrals.
www.nela.org

SHRM Online The Society for Human Resource Management provides articles from *HR Magazine* and links to major human resources–related Web sites.
www.shrm.org

Nolo Press Berkeley, California's Nolo Press has been publishing self-help legal books for 26 years. Surf to the Nolo site to order your free copy of *Nolo's Little Law Book*, a pamphlet answering more than 200 frequently asked legal questions.
www.nolo.com

Bureau of Labor Statistics As part of the U.S. Department of Labor, the Bureau of Labor Statistics offers surveys, programs, and publications devoted to labor.
stats.bls.gov

COURTS

This collection of sites contains information on court decisions, opinions, judicial appointments, and related topics—covering issues from the U.S. Supreme Court all the way down to your local small-claims court.

California State Courts A complete listing of superior, municipal, county, and appeals courts for the Golden State, with information on how the system works and its levels of authority.
www.courtinfo.ca.gov

NCSC The National Center for State Courts is a one-stop resource for courts in all 50 states. It has newsletters, judicial research, and files for downloading.
www.ncsc.dni.us

The Supreme Court Just who are these nine folks in black robes? Get a complete biography, including photographs, for each U.S. Supreme Court justice. You'll also find recent decisions and opinions.
www.law.cornell.edu/supct/justices/fullcourt.html

BUSINESS

Check out this quartet of sites to find out all about business law.

Antitrust Policy The Vanderbilt University Antitrust Policy page provides information about antitrust legislation.
www.vanderbilt.edu/Owen/froeb/antitrust/antitrust.html

ABI World The American Bankruptcy Institute's Web site gives you the lowdown on bankruptcy issues.
www.abiworld.org

Universal Commercial Code Cornell University offers a searchable version of the Universal Commercial Code.
www.law.cornell.edu/ucc/ucc.table.html

SEC Law Get your securities and commodities info at the SEC Law page.
www.seclaw.com

SCHOOLS

Here's a quick summation of four of the top law school sites on the Web.

Harvard Law School Established in 1636, Harvard University in Cambridge, Massachusetts, boasts one of the oldest law schools in the country.
www.law.harvard.edu

Cornell Law School Cornell's Legal Information Institute offers a massive server of legal research, history, documents, and the like.
www.law.cornell.edu

Hastings College of the Law Direct from San Francisco's Tenderloin district, the University of California's Hastings College of the Law links to a half-dozen scholarly legal publications, and includes class information, indexed legal research, and more.
www.uchastings.edu

U of K Law Schools The University of Kansas Law School serves up the Law School home page, a useful alphabetical index of more than a hundred law schools in the United States.
lark.cc.ukans.edu/~kulawlib/usschools.html

PATENTS AND COPYRIGHTS

Have a great idea? These sites help you protect it and profit.

U.S. Patent and Trademark Office The place to start for online patent and trademark information.
www.uspto.gov

The Copyright Website The Copyright Website delivers practical copyright information for Web developers.
www.benedict.com

Trademark Application Forms Before you can slap a handy trademark on that proper noun, you have to fill out a form. Here are the applications you'll need.
www.naming.com/naming/tmforms.html

Wacky Patents Michael J. Colitz's Wacky Patent of the Month picks out patent oddities from the past.
colitz.com/site/wacky.htm

Global Law: News and Information

LEGAL NEWS Feeling litigious? Miss the O. J. Simpson trial? Tune in to our selection of sites devoted to legal news and information for a quick fix.

Legal Beat Track the trials and tribulations of the U.S. government's Communications Decency Act and other free speech issues at the Legal Beat site.
www.links.net/law

Information Law Alert Keep up with legal happenings in cyberspace with up-to-the-moment legal issues involving computer and communications technology. Bookmark this site for a complete look at technology and the law.
infolawalert.com

Court TV Almost better than being there, the Court TV site keeps you posted on everything from Whitewater to world tribunals. Plus, scan an upcoming program list or revisit the major trials of the year.
www.courttv.com

Online Security

BY ED BOTT

How would your life change if the corporate mail room accepted only postcards? How secure would you feel if anyone, anywhere, could read every word of every contract, love letter, and inter-office memo you created? That's about how much trust you should put in the Internet, where people and things are frequently not what they seem to be.

Most discussions of Internet security focus on commercial security concerns. But Internet security is important in other information exchanges as well. Often the content itself is sensitive, and your goal is to prevent third parties from seeing the information. Credit-card numbers fall into this category, as does a memo in which you outline your negotiation strategy for an important contract. Even when the content is not particularly sensitive, protecting your identity may be crucial. If someone can forge your digital signature on a purchase order, for example, you could suffer damage.

By its very nature the Internet is an insecure channel. Packets of data consist of plain text with address information in the headers and are routed seemingly at random; even a modestly talented hacker can spoof an Internet address to intercept, read, and even alter those packets. Fortunately, a pair of time-tested technologies make it possible for anyone to add the digital equivalent of notarized signatures and sealed envelopes to Net-based information exchanges.

> **Hackers can spoof your Internet address to intercept, read, and alter data you think is secure.**

The first is authentication. This technique goes beyond identification, letting you prove that you are who you say you are. Basic authentication requires a user name and password in addition to your Internet address. More sophisticated authentication methods use digital signatures and certificates to guarantee the integrity of a data exchange.

Of course, digital certificates and passwords are useless without the second security technique, encryption. Most effective encryption technologies use public and private keys to scramble data so that only the intended recipient can read it. The recipient's public key (a large number, usually at least 40 bits long) encodes the message, which can then be decoded only by the recipient's private key.

Of course, Internet security depends on sensible behavior and physical security as well. Even the best security is useless if your password is written on a yellow sticky note pasted to your monitor.

Certifiably Secure: Netscape Navigator includes seven certificates that help you ensure that commercial Web servers are trustworthy.

Tips, Tricks, and Techniques

Don't overlook the obvious when considering Internet security.

A digital-signature file stored on your hard disk guarantees nothing if a stranger with a floppy disk can access your machine and make a copy. Likewise, user names and passwords stored on scraps of paper or in e-mail messages are weak spots. User names, passwords, and secure documents are not cached in Netscape Navigator, but they can be stored in a Windows 95 password file.

How do I get my own digital signature?

The most popular source of digital IDs is VeriSign, which has built a reputation supplying certificates to operators of commercial Web servers. To order your own digital signature from VeriSign, point your browser to digitalid.verisign.com. You can choose from four security classes, ranging from Class 1 (designed for casual use) to Class 4 (intended for high-security commercial use; this option requires notarized proof of your connection to the company for which you're requesting the certificate). You can use a digital ID to guarantee your identity and bypass user name and password prompts when connecting to a secure Web server.

Pretty Good Privacy: To encrypt e-mail, use ViaCrypt's $125 Pretty Good Privacy.
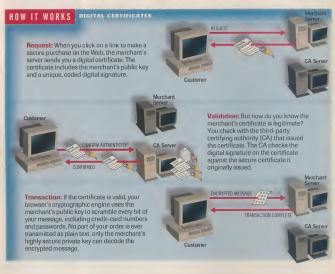
Sun Microsystems' Java and JavaScript are undeniably cool and unnervingly dangerous.

Unscrupulous Web developers can use any of several well-documented techniques to gain access to an unprotected host machine over the Internet. This risk is small when you're accessing a Web site from a known source like *PC Computing*. But if you're pursuing random links to pages you can't personally vouch for, your most prudent strategy is to disable Java and JavaScript. In Netscape Navigator, choose Options, Security Preferences, and check every box. With Microsoft

Play It Safe: If you're not sure whether to trust a Web page, turn off Java support.

Merchant Server

REQUEST

CA Server

Request: When you click on a link to make a secure purchase on the Web, the merchant's server sends you a digital certificate. The certificate includes the merchant's public key and a unique, coded digital signature.

Customer

Merchant Server

Customer

CONFIRM AUTHENTICITY

CA Server

CONFIRMED

Validation: But how do you know the merchant's certificate is legitimate? You check with the third-party certifying authority (CA) that issued the certificate. The CA checks the digital signature on the certificate against the secure certificate it originally issued.

Merchant Server

ENCRYPTED MESSAGE

Transaction: If the certificate is valid, your browser's cryptographic engine uses the merchant's public key to scramble every bit of your message, including credit-card numbers and passwords. No part of your order is ever transmitted as plain text; only the merchant's highly secure private key can decode the encrypted message.

TRANSACTION COMPLETE

CA Server

Customer

Internet Explorer 3.0, choose View, Options, click on the Security tab, click on the Programs button in the Safe Content section, and select Expert mode.

Both leading Web browsers give you unmistakable feedback when you're conducting a secure transaction.

With versions 2.0 and later of Netscape Navigator and Microsoft Internet Explorer, there are two indicators that your transaction is secure. First, the URL will begin with https:// instead of http://. Second, you'll see a security icon in the browser window. In Navigator the icon

appears in the lower left corner of the window as a solid key on a bright blue background. The equivalent icon in Internet Explorer is a bright yellow padlock in the lower right corner.

Are digital signatures accepted for contracts and other legal documents?

Digital signatures have not yet been challenged in court, so

Feeling Secure: Look for one of these telltale security icons at the bottom of your Web browser.

There are important differences in encryption standards for use outside the United States.

Under a controversial U.S. law,

there's no telling whether they're legally valid. The National Institute of Standards and Technology's Digital Signature Standard has been adopted as the federal standard for legal documents such as purchase orders. In theory at least, digitally signed documents are far more secure than signed paper documents because the entire document is incorporated into the signature, and a third party can certify that not one byte has been changed from the original.

cryptographic keys are considered munitions, and exporting software that uses keys greater than 40 bits is a federal offense. Although you're unlikely to be prosecuted for using stronger encryption methods, it's useful to know there's a difference. Insist on the domestic version of any secure software you use. For example, the international version of Netscape Commerce Server uses 40-bit encryption, while the domestic version employs 128-bit keys. Although both use the same Secure Sockets Layer technology to protect transactions, the domestic version is far more resistant to attack from determined hackers.

Large and Loving It

BY RON WHITE

As my hair grows thinner, my belly grows thicker. What was once my chest size has become my waist size. It's been months since I could see my southern half. Don't tell me about diets. I simply want consolation, sympathy, maybe inspiration. What wisdom about my plight might I get from the Internet by searching on *fat man*? Alas, the keywords didn't find my favorite fat man, Sidney Greenstreet in *The Maltese Falcon*. For only the third time ever the Net failed me, and I was crushed. But I found *fat* does lead to some unlikely places, from music to games to Letterman to *Dune*. There are also sites filled with low-fat recipes and encouraging words. But I didn't linger at those spots for long—I had to get to the refrigerator before closing time.

Lunch with the Fat Man

★★★★½ Ah, a kindred, if sort of strange, soul. The Fat Man spouts his personal philosophy based on the concept that "for every philosophy there is an equal and opposite philosophy," also called "rule-of-thumb wrestling." For example, argue that "a stitch in time saves nine," and the Fat Man counters with "haste makes waste." You're invited to agree or disagree via e-mail. Send messages to fatman@outer.net.

www2.outer.net/fatman/sub/fatalog/lunch.html

Trilobyte—The Fat Man

★★★ If you've played the multimedia games The 7th Guest or The 11th Hour, you've heard the music of the Fat Man, a Texan actually named George Alistair Sanger. He wrote the scores for more than 80 computer games. He'll bore you silly with more information about MIDI than any sane person wants to know, and he has his own seal of compatibility for MIDI sound cards. Only problem: He's disappointingly slender and can't understand my angst.

www.tbyte.com/digs/fatman.htm

Trilobyte's Fat Man: Sing along with the Fat Man's tunes on computer-game soundtracks.

Fat Man Naked

★★ I was suckered in by a twisted Web page title that's hard to resist. No fat men and no nudity, except for a link to a discreet derriere. The page was posted by a kid named Chris Neuman who has an enormous ego and admits to using the title as a cheap come-on. Chris likes to complain about school books and Quentin Tarantino. He tells Bill Gates to kiss his butt and rants at length about the superiority of the Mac over the PC. Been there. Heard that. Bought a PC.

www.su.ualberta.ca/people/chris/

Fat Drunk Naked Software

★★ Here's a species I thought was extinct—a programmer who doesn't want to get rich with his programs. Dale Holmes gives them away. Free. It's a matter of principle. In addition to a story of how he met his wife, Dale provides a few simple programs for the taking—an electronic sticky pad, a Rubik's type game, and a few utilities for controlling music CDs. Not great programs, but the attitude's right.

members.aol.com/fdnsoft/index.htm

Fat Games: Enjoy games and other utilities from Fat Drunk Naked Software.

Fats Domino Tour Poster

★★★★ This is more familiar territory—the Moxie Poster Company, which features the work of Greenfield Show Print, one of the few remaining traditional show-card printers. If you don't like Fats, pick Otis Redding, Jackie Wilson, or other blues stars from the 1940s to the 1960s. Cool selection for specialized tastes. Whatever you choose, the printing method alone should make it a collector's item.

www.infi.net/~moxie/rock/domino.html

Sing It, Fats: Relive the golden oldies with tour posters from Fats Domino.

Ratings: ★★★★★ Pepperoni pizza, fully loaded—with extra cheese. ★★★★ Double cheeseburger and a large basket of greasy fries. ★★★ Anything with a heart next to it on the menu. ★★ A sensible garden salad without dressing. ★ Sweatin' with Richard Simmons.

The Floating Fat Man

★★★★★ Just one quote from the movie *Dune*, mouthed by Baron Harkonnen, who uses an antigravity belt to support his weight: "The Duke will die before these eyes, and he'll know, he'll know, that it is I, van Vladimir Harkonnen, who encompasses his doom!" A mere nugget, but it leads to Mark Bennett's Dune Home Page, which is quite a treasure trove for *Dune* fans—the complete script by David Lynch, the cast, a list of scenes cut from the movie, and a list of mistakes in the movie. Very good for the obsessed.

phymet.bham.ac.uk/BennetMN/dune/dune.html

Dunes of Fat: Strap on your antigravity belt and float with the fat man at the Dune Home Page.

Fat Free: The Low-Fat Vegetarian Archive

★★★ If you're serious about losing weight, waddle on over to this site. It's as drab as a blank wall, but it has more than 2,000 fat-free and low-fat vegetarian recipes. They're in a searchable database, and you can upload your own low-fat pièce de résistance. I can't say much for the idea of vegetarian chili, which you'll find a recipe for here, but otherwise, gobble up.

www.fatfree.com/

Jolly Fat Man

★★★★★ Jordn Block is ticked at Rush Limbaugh—but not for the ideological reasons people of the liberal persuasion usually hate him for. Jordn works in a music store, and each Christmas he has to explain to hundreds of shoppers that there is no new CD by Mannheim

SHOCKWAVE GAMES

Check out this page for links to a dozen or so sites that have Shockwave-powered arcade games such as Fat Shooter Man. It ranks frigid on the cool scale.

www.dartmouth.edu/~loeb/games.html

TRICKING TREAT Get ready

for Halloween with The Night Gallery. It's full of animations, MIDI music, rude and rotting graphics, and repulsive facts. It gets the slick site award.

www.wbm.ca/users/kgreggai

The Night Gallery

Steamroller—no matter what Rush told them. From this, Jordn develops a dialectic to prove Rush is the devil. Worth a drive-by.

www.netnet.net/users/dandancm/rush.html

Jake and the Fat Man

★ This site provides a look at item C-135, offered for sale by Celebrity Autographs Catalog. It's

Which One's Jake? You too can own an autographed picture of Jake and the Fat Man.

THE SOUND OF ONE HAND MOUSING

If you're feeling upbeat about the afterlife, go to the Tiger Team Buddhist Information Network to learn more about that religion and participate with other believers on the CyberSangha. Remember, no matter where you go, there you are!

www.newciv.org/TigerTeam

ZONK! Need a good

raspberry? A Daffy Duck laugh? Phaser explosions? Classical music? Check out the collection at Rutgers University.

www.info.rutgers.edu/sounds

BURY BOWSER ONLINE Whoa! You forgot to have suitable

services before you flushed the goldfish? It's not too late. Lead your procession to the Virtual Pet Cemetery, where you can

leave a written memorial to Bubbles or read the touching tributes to other deceased pets.

www.lavamind.com/pet.html

HECK! GO TO HELL This

online guide to Satanism includes Demontia, a collection of trivia about the underworld.

webpages.marshall.edu/~allen12/index.html

an autographed picture of William Conrad and Joe Penny from their TV series. Save yourself 65 bucks. Just check out the photo on the page here.

com.primenet.com/celebrity/p/pennyjoe.html

The Official David Letterman Song Book

★★★ What does this site have to do with fat men? It contains the lyrics to the famous song "The Strong Guy, the Fat Guy, the Genius," one of several ditties first—and last—heard on Dave's little late-night show, along with the names of the performers who sang them and lived.

www.lib.ox.ac.uk/internet/news/faq/archive/letterman.songs.list.html

Fat Lip Reader's Theatre

★★ At this Wolfe Video page you can order a 30-minute video of the Fat Lip Reader's Theatre production of *Nothing to Lose*. It features

FAT LIP Reader's Theatre

presents

NOTHING TO LOSE

Want a Fat Lip? Just insult someone in the Fat Lip video and you'll get one for sure.

15 fat, feisty women speaking, acting, and singing about being fat in America; teaching snappy answers to street taunts; and putting down the diet-obsessed, fat-hating culture we live in.

www.wolfevideo.com/fat.htm

Can we talk? This month our spies were extra busy cruising trailer parks, investigating alien abductions, and dealing with a bevy of domestic dilemmas—just to get the bookmarks of the gurus of gab: Oprah, Phil, Regis and Kathie Lee, Ricki, and Geraldo. See what the tyrants of talk have to say about the wonderful World Wide Web, here and online at www.pccomputing.com.

Celebrities Who Used to Do Drugs, and the Men Who Love Them
Oprah Exposed! www.yale.edu/herald/archive/xxi/2.2.96/opinion/oprah.html

OPRAH WINFREY

Hot Air
The Windy City
www.xnet.com/~cerulean/chicago.html

Idol Chatter
Michael Jackson Talks to Oprah
www.rga.com/4w/4b/jcksn/

Calorie Crusades
The Diet, Weight Loss, and Fitness Home Page
www1.mtv.net/~donn/diet.html

You Go, Girl!
Men Bashing
www.netaxs.com/~siona/humor/bashing.html

REGIS AND KATHIE LEE
In Deep!!!
Carnival Cruise Line
www.carnival.com

Friends of Cody?
Child Labor Laws
www.fsu.edu/%7Efsstwtp/on14w.html

Sweatshop
Kathie Lee's Feel Fit & Fabulous Workout
www.cybersuperstores.com/fitness/klee.html

Win One for the Gifford
The NFL Home Page
www.nfl.com/

Secondary Incomes
Television Commercials
www.yahoo.com/Entertainment/Television/Commercials/

PHIL DONAHUE
Sharing Lipstick???
Looping as a Cross-Dressing
www.sttpcb.com/ccpell2.html

The Forefather of Gum Flapping
The Talk Origins Archive
earth.ics.uci.edu:8080/

That Girl
Marlo Thomas
www.gigaplex.com/celebs/marlo.htm

Today's Topic . . .
World of the Bizarre
netmar.com/users/ovigher/ovi.htm

Off the Air
Donahue Calls It Quits
www.cnn.com/SHOWBIZ/TV/9601/donahue/index.html

RICKI LAKE
I Was a Teenage Alien!

Alien Abductions
www.tristero.com/redplanet/clarknova/alien.html

Recurring Guests
White Trash
pages.prodigy.com/CA/mcgrew/whitetrash.html

Live! Onstage!
Domestic Violence
www.iquest.net/~gfemp/famvi.htm

Talk to the Hand
American Sign Language Dictionary
home.earthlink.net/~masterstek/ASLDict.html

We Need Better Ratings?
Sex Stories Newsgroup
news.alt.sex.stories

GERALDO RIVERA
Anything to Get the Story
The Skinhead International
www.almanac.bc.ca/hweb/orgs/american/adl/skinhead-international/

Occupational Hazards
Broken Nose
www.middlebury.edu/~hroy/daisies.html

Hindsight Is 20/20
ABC News
www.abcradio.ccabc.com/main.htm

Losing My Religion
Journalism Ethics
www.mtn.org/~newscncl/spring95/iggers.html

Oops!
Al Capone
www.well.com/user/mod79/gangsters/capone.html

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- PCI Bus with 128-bit Graphics Accelerator
- Integrated 16-bit Stereo Sound
- Smart Lithium Ion Battery
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